

DUN'S REVIEW

and Modern Industry

A *Dun & Bradstreet* PUBLICATION

JANUARY, 1955
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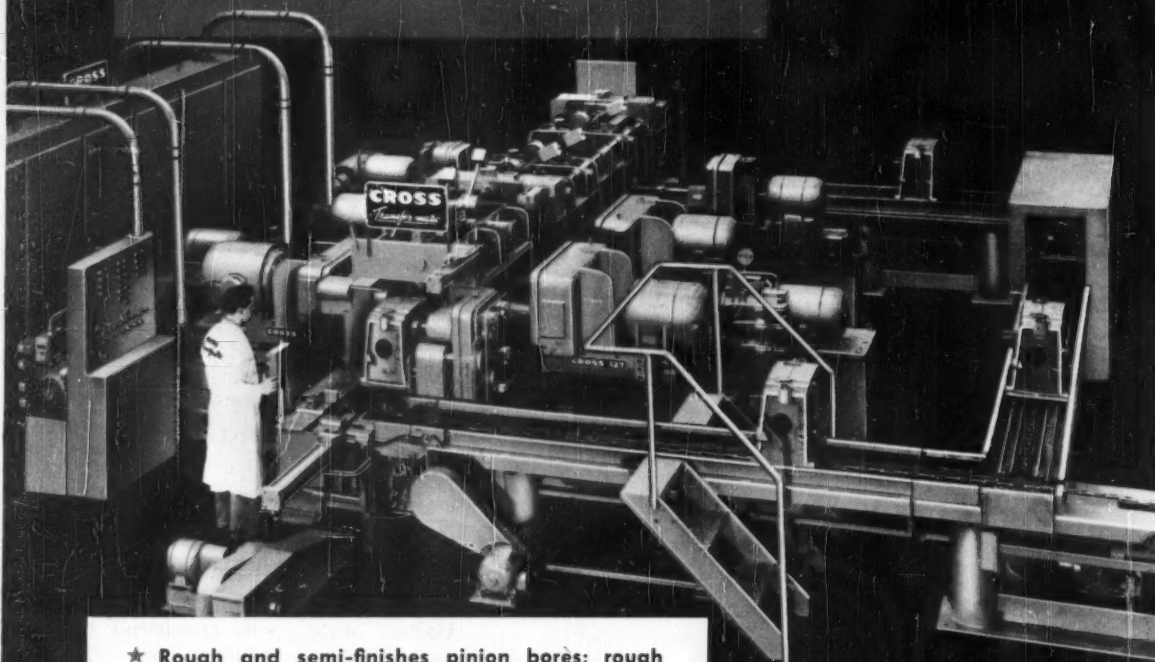


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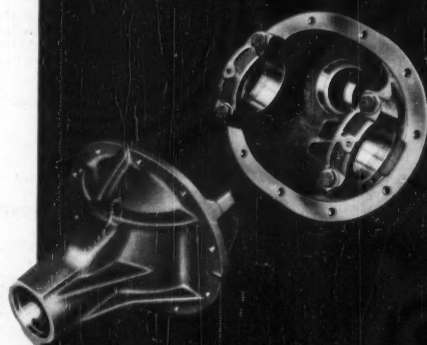
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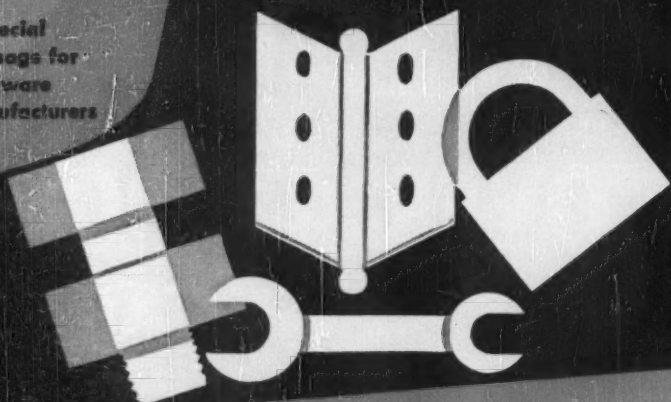
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DUN'S REVIEW and Modern Industry

Steps toward Employment Stabilization..... 31

JOHN L. McCAFFERY
President, International Harvester Company

Full year-round employment stabilization may never attain 100 per cent perfection, but steps are being taken to bring it nearer reality. Here the author discusses what his company has done.

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JAMES K. BLAKE
Marketing Editor

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Employer Relations Editor

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— see especially:

THE SEMI-ANNUAL INDEX of DUN'S REVIEW AND MODERN INDUSTRY for the July-December 1954 period is available. Copies of this index, with listings according to subject, title, author, and companies mentioned, may be obtained upon request.

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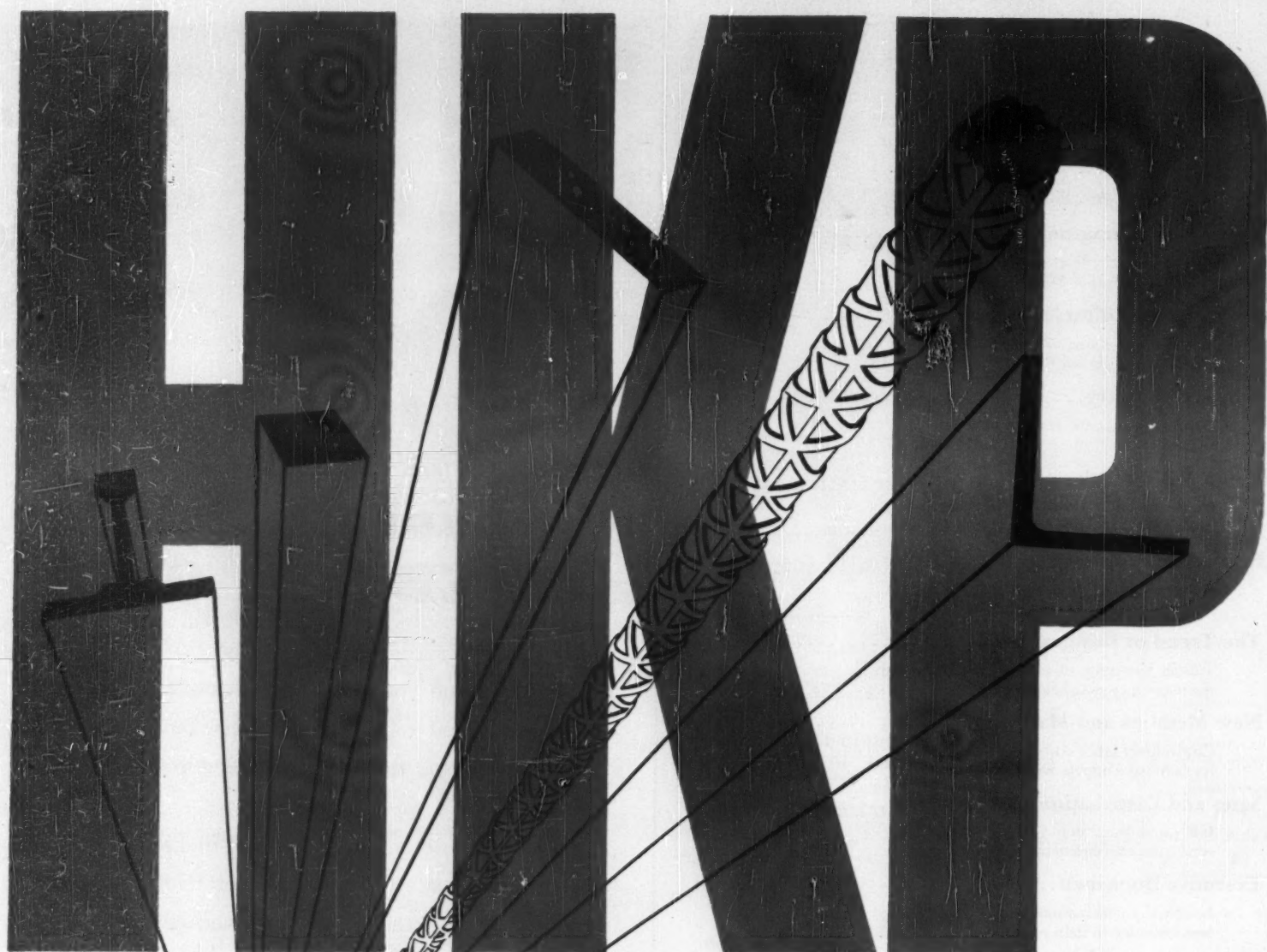
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Paul Wooton, a leading Washington correspondent for many years, reports the thoughts and opinions of Government officials on: Atomic power; tariffs; Latin American relations; Dixon-Yates; fair trade; and other aspects of the national scene.

MANY UNCERTAINTIES bid fair to be resolved in 1955. Among them: mutual assistance policies will be clarified; aid for underdeveloped countries will take more definite form; interchange of goods with foreign countries will be made easier; expenditures for public works will be increased; Congressional investigations will be better regulated; military service laws will be revised.

★ Nothing impresses Washington officials more than the continued strength of the economy in the face of uncertainties abroad and divided government at home. While the mixed political situation is giving rise to backing and filling in Congress, the prospect is engendering no pessimism. In fact, officials confess they are unable to foresee any probable development likely to upset the economy.

The administration would be happier if the stock market would lose some of its boom aspects, but it is mindful that speculation is not excessive and that stocks were unrealistically low for fifteen years. Only now are they reflecting the inflation in the general price level. The public, desirous of sharing in the growth of the country, is investing in equities. Continued growth of private expenditures is seen at the Treasury as evidence that the restrictive policies of May 1953 did not bring about the decline. The feeling is that it was due to the reduction in defense expenditures and the inevitable adjustment of inventories. Business men are cautioned, however, that optimism feeds on optimism.

★ A current development that bodes much for the future is the study of atomic power for civilian use being undertaken by the National Planning Association. The study was made possible by the Ford Foundation. Anything that can be done to bring nearer the time when it will be feasible to use nuclear power in Japan and such countries where energy is expensive would be of great economic help. The task force has no delusions about any early commercial use of atomic power. Its study assumes that it will take at least ten years for the obstacles in the path of commercial power to be removed. For that reason the study will be aimed at objectives that may be possible a decade hence.

★ New assurance that the state of the Union is good came in the message of the President to the Congress. His advisers expect no burst of buying, but are looking forward to a year in which the economy will move along at an even rate much like 1954.

★ Unemployment in February and March may increase to 3,500,000, say Labor Department statisticians. Unemployment is not expected to become severe on a national basis, but there are localities which are causing worry. Most of the area unemployment of a continuing character is due to inability of industries to maintain output in a competitive market. In such cases there is not much the Federal Government can do. The solution lies in efforts of the local community.

★ Legislators are warning their constituents that the American market must be prepared to absorb more foreign goods. This Congress has the votes to pass bills that will lower barriers that im-

ports now must hurdle. The President is ready and anxious to sign such bills. The majority feeling is that no industry can retain public favor if its price greatly exceeds that of comparable items of foreign manufacture.

★ Latin American countries were advised frankly at the Rio de Janeiro conference that much of their difficulty in securing capital from the United States was of their own making. American investors are keenly aware, the conference was told, of the opportunities in that part of the hemisphere. Money will flow into those countries just as it has gone into Canada once Latin America builds the necessary confidence.

★ This Administration is endeavoring to shift governmental functions to local levels. Carrying out that policy is being hampered by the lack of capacity on the part of a considerable percentage of local officials. One of the great needs is for a more capable personnel to handle functions that are decentralized.

★ Concern need not be felt that the Administration will accept any of the promises being bandied about by the communists. It has been made clear on various occasions that the United States will make concessions only when justified by deeds.

★ Competition from abroad cannot be compared in degree with that developing domestically. Many producers must exercise more ingenuity in improving quality and in developing new products if they are to withstand the onrush of competition of 1955 intensity.

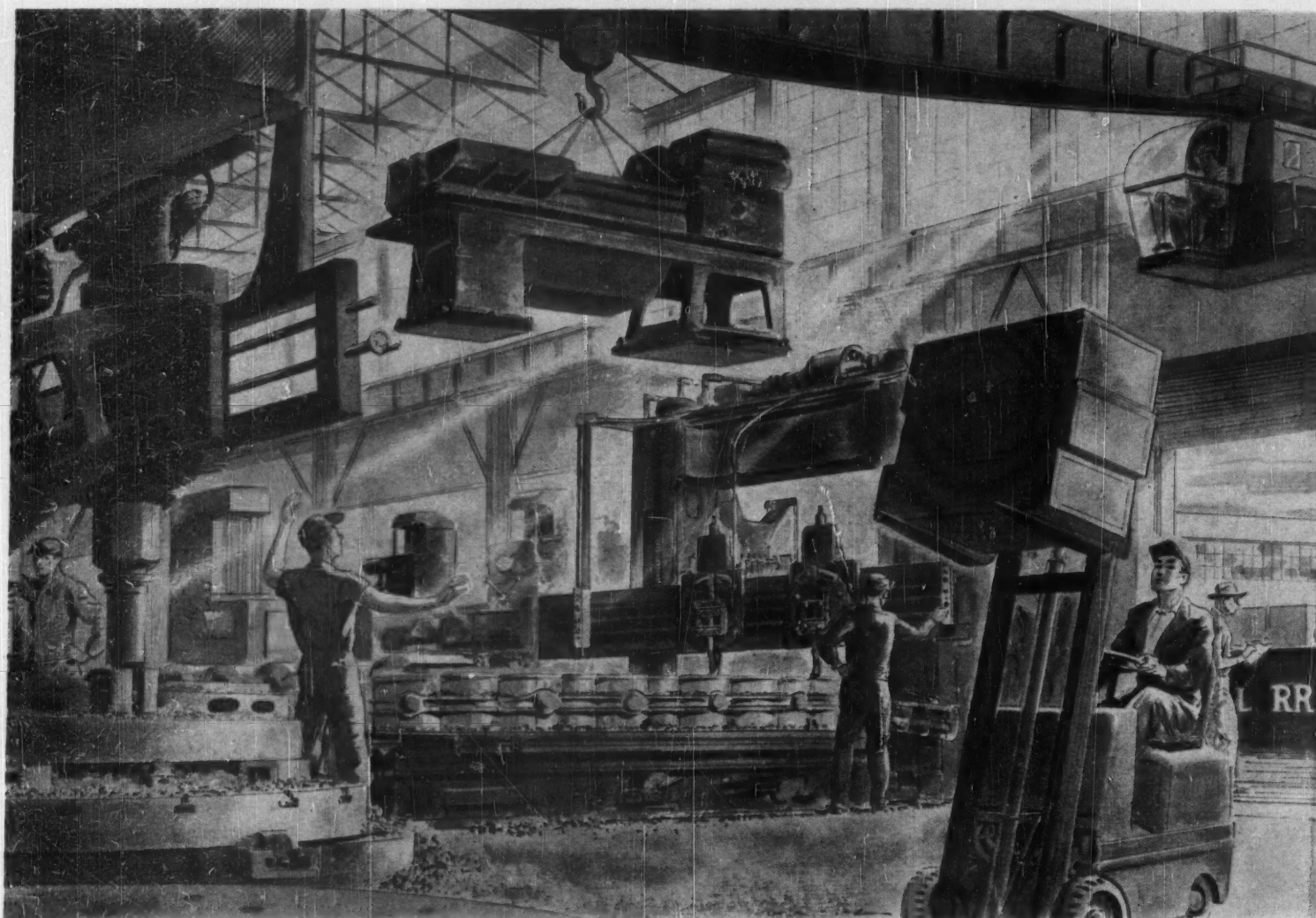
★ Fair trade concepts are fast going by the board. The new phenomenon in merchandising known as the discount house has opened a new area of competition. Officials admit that the effect is to narrow the spread between the producer and the consumer. They believe the day of the high mark-up is over and that profits must come instead from volume.

★ Controversy over the Dixon-Yates contract is forcing consideration of policy to govern other sections that are clamoring for federal support of area development. The Administration wants to get Uncle Sam out of that type of activity and is suggesting the handling of development projects under compacts among interested states. The New York Port Authority is cited as an example. It operates with money from private sources. The whole question of resource development is involved.

★ Although no dramatic declaration that the pound sterling will be made convertible on a certain day is forthcoming, Washington expects 1955 to see more restrictions removed and more use of sterling as though it were convertible.

Paul Wooton

WASHINGTON, D. C.



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LETTERS to the Editor

ONE WAY TO LOOK AT IT
East McKeesport, Pa.

Dear Sir:

In your October issue in the Letters to the Editor column, one of your readers comments on the fact that your articles are all slanted towards the larger business men and firms. . . .

I do like to read your magazine, if for no other reason than to make me certain that I do not wish to grow so large that we require office managers, production managers, and all the rest of the multitude of management specialists required to run a big business.

During the war . . . I took a war job in a nearby company. . . . Having been brought up in the tradition that to manage required a thorough knowledge of the entire process of making what you were selling and, in addition, what went on in the office . . . I was in hot water a lot of the time for using my judgment on how to do a job and doing it that way instead of asking someone if it could be done in that manner. I was eventually fired, not for any real breach of the rules . . . but, as the foreman said, "They did not need inspectors so badly that they had to put up with my independence."

Leon N. Loeb

The Flower Farm

CONSTRUCTIVE CRITICISMS
Chicago, Ill.

Dear Sir:

Your magazine just leaves me plain frustrated! It's one of the finest magazines I know; it has a good format and arrangement. The authors of your articles are well chosen, and they show a depth of understanding in their respective fields that shows each of them to be outstanding.

But here's why I get frustrated: Whenever I want to take this magazine with me away from my office to read, it won't fit in my briefcase—unless, of course, I take my super jumbo-size briefcase. . . .

Why can't DUN'S REVIEW AND MODERN INDUSTRY publish a magazine that will fit in the normal briefcase?

After reading the excellent series of articles which tell the executive how to pamper himself, relieve

tenseness, and otherwise try to keep himself in clear-thinking, fighting trim, I wish DUN'S REVIEW AND MODERN INDUSTRY would give a little in this area and contribute to the lessening of my frustrations and those of others who are confronted with the same difficulty.

Thomas M. Ware

Vice-President

Engineering Division

International Minerals &

Chemical Corporation

Toronto, Canada

Dear Sir:

There is one suggestion I would like to make. . . . Is there any way of perforating some of the pages, especially those where you deal with a specific problem? The pages could then be torn out and kept neatly in a binder. It would be an easy matter to read and study them whenever one had a few moments and when one wanted to refer to the subject again.

Alma Anthony

Credit Manager

Hackbusch Electronics Limited

LINEAR RESPONSIBILITY
CHART

Miami, Fla.

Dear Sir:

We were very interested to see the article on Linear Responsibility Charts (September, Page 46). . . .

We were especially interested because we have been using a system similar to this with some of our clients for the past three years, and although our form as used is somewhat different than that outlined by Mr. Birn's method, the results and the general procedure are the same. . . .

We use a somewhat different method of charting, call ours a "Functional Analysis Outline," and use letters instead of the symbols which Mr. Birn's method suggests. We agree with all the points of the article, that it adds simplicity and easy-to-reach detail, but do find that it relies particularly on a careful breakdown not only of the functions as defined in the analysis, but on the handling of certain phases of that function by different individuals. A mistake made, for example, in functional definition can be a



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<input type="checkbox"/> Insurance
<input type="checkbox"/> Interpreting Financial Statements
<input type="checkbox"/> Letter Writing Improvement
<input type="checkbox"/> Marketing & Production
<input type="checkbox"/> Public Relations
<input type="checkbox"/> Purchasing
<input type="checkbox"/> Quality Control</p> | <p><input type="checkbox"/> Report Writing
<input type="checkbox"/> Retail Business Management
<input type="checkbox"/> Retail Sales Management
<input type="checkbox"/> Retail Store Management
<input type="checkbox"/> Retail Store Supervision
<input type="checkbox"/> Retail Store Training
<input type="checkbox"/> Retail Store Writing
<input type="checkbox"/> Retail Store Merchandising
<input type="checkbox"/> Retail Store Salesmanship
<input type="checkbox"/> Retail Store Supervision
<input type="checkbox"/> Retail Store Training
<input type="checkbox"/> Retail Store Writing</p> <p>REPORT WRITING</p> <p><input type="checkbox"/> Report Writing
<input type="checkbox"/> Retail Business Management
<input type="checkbox"/> Retail Sales Management
<input type="checkbox"/> Retail Store Management
<input type="checkbox"/> Retail Store Supervision
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<input type="checkbox"/> Retail Store Supervision
<input type="checkbox"/> Retail Store Training
<input type="checkbox"/> Retail Store Writing</p> <p>RETAIL</p> <p><input type="checkbox"/> Bookkeeping, Business Forms
<input type="checkbox"/> Buying, Pricing
<input type="checkbox"/> Department Store Operations
<input type="checkbox"/> Retail Merchandising
<input type="checkbox"/> Retail Salesmanship
<input type="checkbox"/> Retail Store Management
<input type="checkbox"/> Retail Store Supervision
<input type="checkbox"/> Retail Store Training
<input type="checkbox"/> Retail Store Writing</p> <p>SALESMANSHIP</p> <p><input type="checkbox"/> Creative Salesmanship
<input type="checkbox"/> Real Estate Salesmanship
<input type="checkbox"/> Sales Analysis
<input type="checkbox"/> Sales Letters
<input type="checkbox"/> Sales Management
<input type="checkbox"/> Selecting Salesmen
<input type="checkbox"/> Supervising Salesmen
<input type="checkbox"/> Training Salesmen
<input type="checkbox"/> Textile Salesmanship
<input type="checkbox"/> Textile Sales Training
<input type="checkbox"/> Textile Sales Writing</p> <p>SECRETARIAL-
STENOGRAPHIC</p> <p><input type="checkbox"/> Business Correspondence
<input type="checkbox"/> Business English
<input type="checkbox"/> Business Grammar
<input type="checkbox"/> Business Letter Writing
<input type="checkbox"/> Business Report Writing
<input type="checkbox"/> Business Speech Writing
<input type="checkbox"/> Business Writing
<input type="checkbox"/> Business Writing</p> <p>PERSONNEL</p> <p><input type="checkbox"/> Collective Bargaining
<input type="checkbox"/> Employee Relations
<input type="checkbox"/> Employment Practices</p> | <p><input type="checkbox"/> Professional Secretary
<input type="checkbox"/> Secretarial Accounting
<input type="checkbox"/> Stenography
<input type="checkbox"/> Typewriting</p> <p>TRADES</p> <p><input type="checkbox"/> Air Conditioning
<input type="checkbox"/> Apprenticeship Training
<input type="checkbox"/> Automobile Repair
<input type="checkbox"/> Blue Print Reading
<input type="checkbox"/> Building Trades
<input type="checkbox"/> Diesel Engines
<input type="checkbox"/> Domestic Refrigeration
<input type="checkbox"/> Internal Combustion Engines
<input type="checkbox"/> Plumbing & Heating
<input type="checkbox"/> Radio and TV Servicing
<input type="checkbox"/> Refrigeration
<input type="checkbox"/> Sheet Metal
<input type="checkbox"/> Textile
<input type="checkbox"/> Textile</p> <p>MANAGEMENT</p> <p><input type="checkbox"/> Air Services
<input type="checkbox"/> Freight Class, Rules
<input type="checkbox"/> Freight Services, Facilities
<input type="checkbox"/> Motor Traffic Management
<input type="checkbox"/> Regulation of Carriers
<input type="checkbox"/> Shipping Documents
<input type="checkbox"/> Training, Expanding, Claims
<input type="checkbox"/> Traffic Control, Management</p> |
|---|--|---|--|

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City _____ Zone _____ State _____ Working Hours _____ A.M. to P.M.
Occupation _____ Canadian residents send coupon to International Correspondence Schools, Canadian, Ltd., Montreal, Canada. . . . Special tuition rates to members of the U. S. Armed Forces.

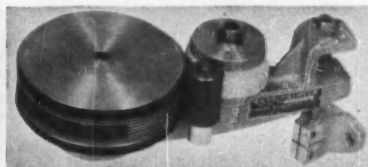
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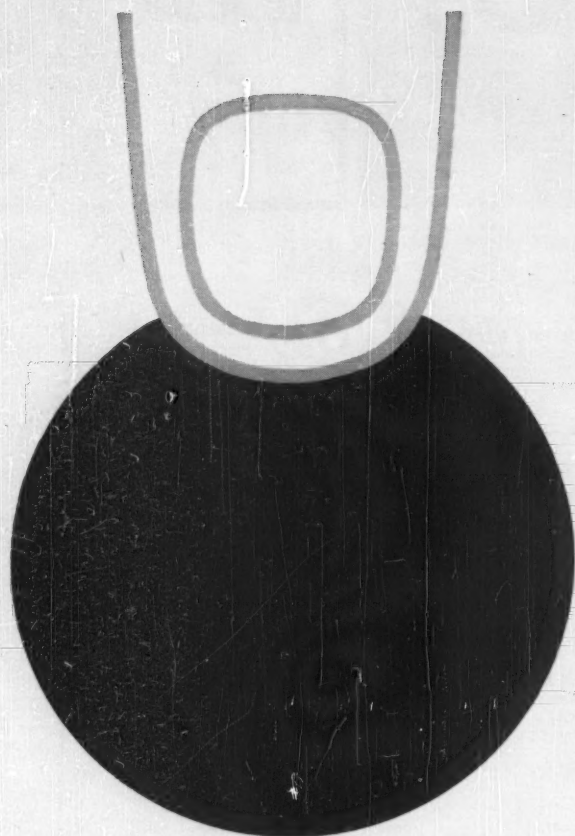
— 454 Baltic Street, Brooklyn 17, N. Y., Dept. DR —

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OF MATERIALS

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In Canada—331 Bartlett Ave., Toronto

cause of great difficulty if not carefully watched for.

We still think that this is an interesting example of how good ideas can appear in different parts of the world independently, at the same time, all of them tending to help make business life a little easier.

Philip W. Moore

President

First Research Corporation
of Florida

CLARIFICATION

East Chicago, Ind.

Dear Sir:

We appreciate the photo-and-caption report on the impact extrusion process in your November issue (page 78). However, as the material furnished to you was essentially a "round-up" report on the process, rather than a report concerned exclusively with our facilities, it was necessary to use some parts produced by others for illustrative purposes.

As we have produced even more difficult and exacting impact extrusions, we are of course able to produce any of the types shown. Nonetheless, we are anxious to keep the record straight and avoid even small inaccuracies which might tend to mislead your readers.

William Johansen

Vice-President

Magnesium Company of
America

IN ADDITION

Newark, N.J.

Dear Sir:

I read with interest your informative article concerning miniature components, such as capacitors, thermal switches, and cams, in your November issue. . . .

This article prompts me to bring to your attention our recently developed miniature electromagnetic clutch, Model C130. . . . This clutch does not require precise alignment of the driven member with respect to the driving member; appreciable angular misalignment will not cause the clutch to malfunction. The driven member comprises three individual shoes to prevent chattering upon engagement.

To the best of our knowledge, this is the lightest electromagnetic clutch now available from stock.

D. Rabinow

President

Dial Products Company

1 Numbering Machine 10 Jobs go Faster . . .

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**FORCE
150**



Automatic, all-purpose numbering machine speeds up dozens of everyday jobs in office or plant. (Provides consecutive, duplicate or repeat numbering.) See your dealer or let us send our catalog "How to Select a Numbering Machine."

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MOBILE LOADING RAMPS



a loading dock on wheels!

- Loads Yard Cars, Highway Trailers—Quickly, Easily
- One Man Moves It—Trailer Hitch Optional for Long Distance Towing
- Eliminates Hand Loading—Car Spotting—Demurrage
- Bridge Design—All Magnesium Construction
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A loading dock on wheels! Where you want it . . . when you want it! Services yard cars or highway trailers. Lightweight—easily moved about. Hydraulic lift positions it. Use as a dock or as an auxiliary unit to relieve overtaxed dock facilities. They're practical, economical, and efficient! Get the facts today.



WRITE TODAY FOR BULLETIN DB-211

MAGLINE INC.
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CM* **Contract Manufacturing**

*It can help you with costs
and capital investments...*

CM*—Contract Manufacturing—is being ever more widely used by a growing number of companies . . . companies of every size . . . companies with and without manufacturing facilities of their own. CM is a vital part of their and the American Economy.

WHAT IS MEANT BY CM*: CM is true Contract Manufacturing. CM provides complete facilities for design, engineering, research, every phase of mechanical and electro-mechanical production, metal fabrication, complete assembly, package design, shipping and warehousing. These facilities should be equally available for component parts or complete products. If you are now using a contract manufacturer, and he does not provide all of these facilities, you may very well be missing some or many of the advantages of true CM.

WHEN TO USE CM*: When your present production facilities or certain departments are not keeping up with current market demands, or you wish to experiment in or expand into new markets, you face the capital expenditure for additional plant space and equipment. Perhaps this is the wisest move and perhaps not, but the answer can be very accurately determined by comparing your planned costs and investments with the costs of a really complete Contract Manufacturer. This would apply whether you were looking for component parts or complete product assemblies. There is no guesswork because CM is done on firm contracts based on firm quotations.

WHAT CM* CAN DO FOR YOU: When you deal with a true Contract Manufacturer you are receiving the benefits of the know-how, production experience and design ingenuity of a substantial organization. Their ideas on re-design for simpler and less costly production, their ability to research and develop patents for you, their ability to produce quickly and their very firm code of dealing with you in absolute confidence makes your Contract Manufacturer an integral part of your product success without your having to invest a single dollar in capital improvements.

You need use CM, or any special department of CM, only when you need it. Your production costs do not pyramid due to down time. CM improves products and component parts for every customer . . . if it did not, CM would not be the growing business it is.

CM* and THE OILJAK MANUFACTURING COMPANY: When you deal with Oiljak you will enjoy every benefit of CM. Oiljak is a complete Contract Manufacturer with over 25 years experience in working for and with many famous trade names. While true Contract Manufacturing is not exclusive with Oiljak—there are other true Contract Manufacturers and good ones—we do feel that you will benefit from and enjoy working with us. Drop us a letter or give us a call on the phone. Without any obligation whatsoever we are always ready to sit down and discuss problems . . . and always ready with the best answer we can possibly give.



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FOR OVER 25 YEARS — COMPLETE CONTRACT SERVICES . . . FROM
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To serve you with the finest in aluminum products, Revere has moved into large scale operation with the most modern equipment. Revere can offer you the kind of quality and service that comes from more than 153 years' experience in producing non-ferrous metals.

If we are supplying you now, we believe you will agree that Revere knows its A-B-C's—"A" for Aluminum, "B" for Brass, "C" for Copper.

If you are not yet a user of Revere metals, we will welcome the chance to show you what the Revere A-B-C's and the Revere Technical Advisory Service can mean to a manufacturer today. Why not call Revere now? Revere Copper and Brass Incorporated, *Founded by Paul Revere in 1801*. Executive Offices: 230 Park Avenue, New York 17, N. Y.

FOR THE LATEST IN PACKAGING

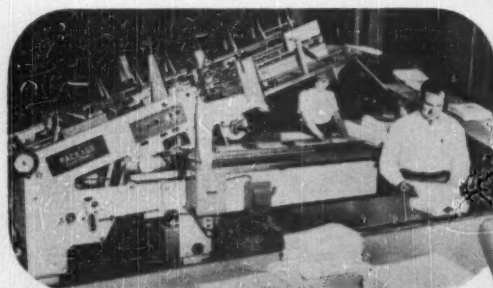
...look to "Package"



SUPER MARKETS

are installing this new "Package" machine to wrap all kinds of prepackaged meat and luncheon items in trays or on cards. Saves labor and enables them to wrap meat as needed — not days in advance. The meat looks fresher — sells faster.

FROZEN FOOD manufacturers can now wrap up to 160 packages a minute on this fast machine, built to tie in with their high-speed filling machines. Its advanced design results in neater, more attractive packages and a machine that is easier to adjust and clean.



TEXTILES

in great variety are being wrapped on this new machine. Accommodates any package from 4" to 16" long, 2" to 9½" wide and 1" to 5¼" high. Two hand-wheel adjustments set it for a given size.



New developments constantly coming off our drawing boards offer real opportunities for increasing the sales appeal of your package and for cutting costs. Whether you wrap, bag or carton your product, get the benefit of our 40 years of experience in serving leading package-goods manufacturers.

Write for descriptive folder
on our machines



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DALLAS DENVER LOS ANGELES SAN FRANCISCO SEATTLE TORONTO MEXICO, D.F.

VOICE OF INDUSTRY

Trade association conventions; what's ahead for materials handling; steel production comparisons; what is considered when merging; limits on money's usefulness.

The purpose of trade associations



H. A. KENT

Chairman of the Board, P. Lorillard Co., before National Association of Tobacco Distributors, San Francisco.

"... a skillful screening of trade deficiencies ..."

Why do we have Trade Associations and why do we frequently meet in convention? . . .

First, they provide a common meeting ground and a sounding board for the men in industry who are not content with their present knowledge and who are thoroughly convinced better and more efficient ways can be found for the improvement of their business. They recognize that the skill employed in association work fashions ways and means to accomplish, through group conferences, that which is difficult to work out on the individual drafting board.

Seeing the other fellow's weakness, as he sees ours, gives us the opportunity, through strength of union, to aid each other. Through organized effort of the association's technicians, a skillful screening of trade deficiencies is carried on and corrective remedies prescribed. Nearly all important industries are organized in this manner, and where you find industry interested in association work, you invariably find a better condition on all levels with the rays of leadership penetrating every phase and jealousies reduced to a minimum.

I can truthfully say I have yet to

attend a convention that has not produced some idea that I could take home and apply to my own operation. Conventions do things for us. They give us a new grip on our boot-straps; they clear the mind of static cobwebs. They serve as an exchange for helpful suggestions; they accentuate the program we should recognize with our home groups and our duties to the less fortunate. They mirror the importance of becoming a part of local leadership.

The future of product movement



W. F. ROCKWELL, JR.

President, Rockwell Manufacturing Co., before Conference in Integrating Material Handling and Transportation, Chicago, Ill.

Let's look more closely at the general problem of Movement. . . .

Every unit of matter converted into a salable product represents an expenditure of foot-pounds of energy equal to all the movements required for the manufacture and delivery of the product. That expenditure has as real a price tag as the raw material itself or the labor that goes into the manufacturing process.

The foot-pound energy cost of Movement may include the freight charges for incoming castings; the wages and operating costs of the men and machines who unload and store incoming supplies; and of the men and machines who move sup-



"People often are hoggish about paper towels."

WITHOUT realizing it they'll use from two to four single fold towels just for drying.

— wasting as much as 40 inches of paper toweling.

But you can control this waste.

With savings up to 40%!

How?

By installing WESTROLL TOWELS in West Micromatic Cabinets.*

PEOPLE quickly unroll as little or as much as they want.

But without realizing it they take less. Averaging 17 inches of soft, absorbent WESTROLL.

Saves janitors' time, too.

— one filling of the tamper-proof cabinet equals four of a single fold towel dispenser.

— there's less litter to clean up.

And washrooms are cleaner, neater.

LET a West representative tell you more about WESTROLL economies. Or send for our WESTROLL folder.

**Cabinets are loaned.*

OLDEST AND LARGEST
COMPANY OF ITS KIND
IN THE WORLD



WEST DISINFECTING COMPANY

Dept. 1

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In Canada: 5621-23 Casgrain Ave., Montreal

- ☐ I'd like a FREE copy of your folder on cutting towel costs with WESTROLL.
- ☐ I'd like to have a WEST representative telephone me for an appointment.

Name _____

Position _____

(Tear out this coupon and mail it with your letterhead)



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DIP IN THE
LABOR POOL
PRODUCED
2,000 PLANT
WORKERS
AT THIS
OHIO RIVER
PLANT SITE**



Baltimore & Ohio Railroad

Those who **KNOW** use B&O!
Constantly doing things—better!

"Only yesterday" . . . on a B&O AMERICAN RUHR site, Ravenswood, West Virginia . . . a giant aluminum sheet and foil mill needed workers for construction and operation . . . the word was passed . . .

The first day 2,000 workers applied—at last account, 11,000! Plenty to construct and operate the initial unit of a plant which ultimately will produce 250 million pounds of aluminum sheet and foil annually.

Over a billion dollars recently spent in basic plants, plus this new giant, is ample proof of industry's confidence in the area.

If you have a new plant in the thinking stage, you owe it to yourself to look over this area for your requirements. Your new plant plans require proof of plant site potentials! . . . B&O can supply it, with data on resources and markets, and superior transportation to serve you. We want your plant here. DESIRABLE SITES! Look them over on the ground, or at your desk with our new airviews plus 3-dimensional color. Ask our man. You can reach him at:

New York	4	Digby	4-1600
Baltimore	1	LExington	9-0400
Pittsburgh	22	COurt	1-6220
Cincinnati	2	DUnbar	2900
Chicago	7	WAbash	2-2211

plies to and from storage, process, or shipping. . . .

Although the technique of Movement planning and operation is in its infancy, full advantage should at least be taken of the equipment and know-how available. Too many companies, and especially the smaller companies, are still in a relatively primitive stage of materials handling and movement. . . .

Management is presently accustomed to measuring and analyzing a company's operations in terms of sales, finance, engineering, and production, to mention a few. In the future, they may also use the dimension of Movement for analysis. All managements may someday chart the progress of the monetary equivalent of the foot-pounds of energy expended per unit of product, just as it is accustomed to chart dollars of sales or production costs.

Perhaps we may see the rise of a new executive position—that of Manager of Movement. . . .

The Movement Manager and his team will co-ordinate their activities with the product design group, the production group, the packaging group, and with their dealer and distributor organizations. In this way, all Movement . . . will be considered as a whole.

A steelman looks at steel



BENJAMIN F. FAIRLESS

Chairman of the Board, United States Steel Corp., before Alabama State Chamber of Commerce, Birmingham.

To those of you who recall the recent years of steel shortage, when our plants were bursting at the seams in an effort to meet the emergency requirements that were imposed upon them, it may seem that an operating rate of 77 per cent is nothing to crow about. But in that connection, I should like to remind you of two things:

First, that the steel-making capacity of the industry has been increased enormously during the past few years; so by operating at 77 per

" . . . more steel than a 100 per cent rate . . . six years ago."



BUTLER BROTHERS TIES MAIL 10 TIMES FASTER

"We tie out as many as 100,000 pieces of mail a day . . . and do it 10 times faster than by hand-tying," says Miss K. Bryant, Service Department Supervisor of Butler Brothers, one of the world's large distributors of general merchandise.

Bunn Tying Machines help move this avalanche of bulk mail through Miss Bryant's department. Operators simply place a stack of envelopes on a Bunn Machine and step on a treadle. In only 1½ seconds the bundle is neatly and securely tied.

Dozens of different mailings go out each day, but because the Bunn Tying Machines adjust automatically to any size or shape, no time is lost in changing from job to job. Every stack is tied with just the right amount of twine . . . with uniform tightness . . . and with a wrap and knot that are fully approved by Postmasters.

Bunn Tying Machines pay for themselves many times over. They decrease down-time due to absenteeism—anyone can operate; simple, fatigue-less operation increases employee efficiency and production; they are quickly and easily moved to break bottlenecks in various work areas—eliminate overtime pay; they reduce bundle breakage and material damage.

BUNN

B. H. Bunn Co., Dept DR-1
7605 Vincennes Avenue, Chicago 20, Illinois

GET THE WHOLE STORY

Send today for this fact-packed tell-all booklet which illustrates the many advantages of this machine. There is no obligation.

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7605 Vincennes Ave., Chicago 20, Ill.

Please send me a copy of your free booklet describing the many advantages of your tying machine.

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Company _____

Address _____

City _____ Zone _____ State _____



NEW CHEVROLET TRUCKS

engineered and designed with your profit in mind!

Everything about these new Chevrolet trucks spells *profit!* Their low cost, their stamina and dependability, even their traditionally higher resale value!

COST LESS TO BEGIN WITH

That's right, Chevrolet brings you America's lowest-priced line of trucks—so you save right from the start. The beauty of it is, you go right on saving! With the high compression ratio of Chevrolet's three great engines, you register more miles on the job for each tankful of gas. You can count on fast starts; easy pulling up steep grades. You stay on schedule and keep the profits coming in *on time!*

COST LESS TO MAINTAIN

That's because of the rugged strength and stamina engineered into every new Chevrolet truck. They stay on the job longer (actual owner reports prove it!), cutting your maintenance costs right to the bone. Look over the many advance-design features in the next column and you'll begin to see why.

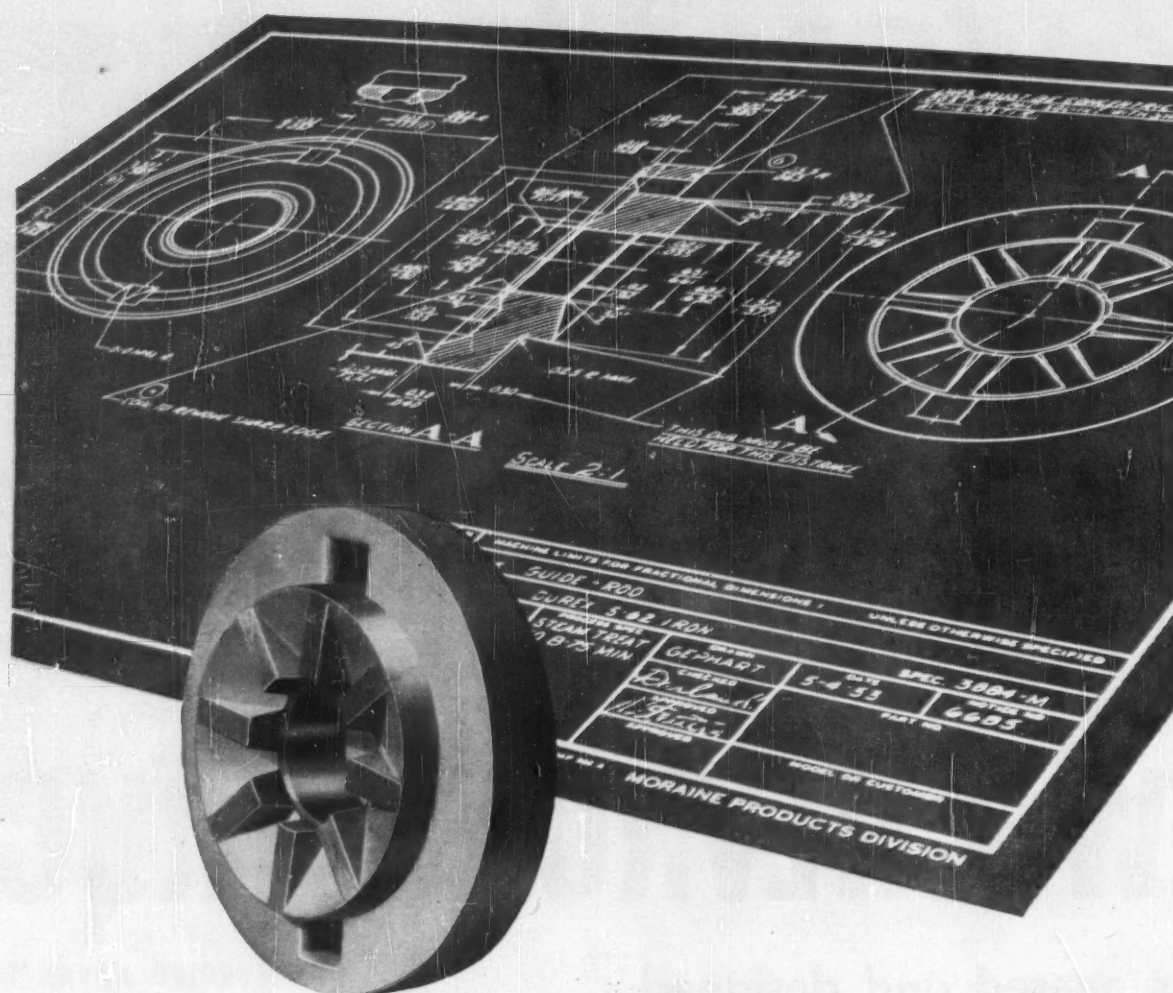
Your best bet is to talk trucks with your Chevrolet dealer. He'll tell you all you want to know about these Chevrolet profit-makers! . . . Chevrolet Division of General Motors, Detroit 2, Michigan.



CHEVROLET ADVANCE-DESIGN TRUCK FEATURES

THREE GREAT ENGINES—The "Jobmaster 261" engine* for extra heavy hauling. The "Thriftmaster 235" or "Loadmaster 235" for light, medium- and heavy-duty hauling. **TRUCK HYDRA-MATIC TRANSMISSION***—offered on ½-, ¾- and 1-ton models. Heavy-Duty **SYNCHRO-MESH TRANSMISSION**—for fast, smooth shifting. **DIAPHRAGM SPRING CLUTCH**—positive-action engagement. **HYPOID REAR AXLE**—for longer life on all models. **TORQUE-ACTION BRAKES**—on all wheels on light- and medium-duty models. **TWIN-ACTION REAR WHEEL BRAKES**—on heavy-duty models. **DUAL-SHOE PARKING BRAKE**—greater holding ability on heavy-duty models. **RIDE CONTROL SEAT***—eliminates back-rubbing. **LARGE UNIT-DESIGNED PICKUP AND PLATFORM STAKE BODIES**—give trip-saving load space. **COMFORT-MASTER CAB**—offers greater comfort, convenience and safety. **PANORAMIC WINDSHIELD**—for increased driver vision. **WIDE-BASE WHEELS**—for increased tire mileage. **BALL-GEAR STEERING**—easier, safer handling. **ADVANCE-DESIGN STYLING**—rugged, handsome appearance.

*Optional at extra cost. Ride Control Seat is available on all cabs of 1½- and 2-ton models, standard cabs only in other models. "Jobmaster 261" engine available on 2-ton models, truck Hydra-Matic transmission on ½-, ¾- and 1-ton models.



MORaine MAKES MANY COMPLEX PARTS FROM METAL POWDER

When you examine the background print you note the intricate design and close tolerances demanded of this metal powder part. Imagine the expense entailed in producing this part by conventional casting and machining methods!

Through the use of Moraine metal powder technique, this part is produced to precision standards with *one* press operation. The sav-

ings in cost make a most important contribution to the over-all profit possibilities of products using similar parts.

This is but one more example of what is being accomplished through cooperative effort between customer and Moraine. Industries everywhere are improving performance and cutting costs by sharing Moraine's experience with metal powder.



**moraine
products**

DIVISION OF GENERAL MOTORS, DAYTON, OHIO

**METAL
POWDER
PARTS**



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A Peerless DRI-STAT photocopier is your best protection against file-robbing "thieves." With this truly modern office machine, it's easy to make those necessary extra copies of reports, charts, letters, or work sheets you may need but can't risk losing from your files. In just one minute per page, DRI-STAT will faithfully reproduce everything on the original—pencilled notations, half-tones, material printed in colored inks—in clear, sharp, black-and-white copies.

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PEERLESS PHOTO PRODUCTS, INC.
Shoreham, L. I., New York DR-1

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☐ Please send me your free brochure describing DRI-STAT.

NAME.....

TITLE.....

ADDRESS.....

cent of today's capacity, we would actually get more steel than a 100 per cent rate would have given us only six years ago.

Second, I should also like to point out that steel plants were never intended nor designed to operate at 100 per cent. Historically, the industry has always sought to maintain a substantial reserve of capacity for use in times of great national emergency; and at such times, it has been able to run at 100 per cent only by resorting to the uneconomic use of marginal facilities, materials, and manpower.

Six reasons for buying a company



"... acquire going
businesses at a fair
price ..."

DAVID S. MEIKLEJOHN

Treasurer and Director, American Machine & Foundry Co., before American Management Association, New York City.

It takes time to develop a position as a prime contractor and we wanted more profits immediately. If we could acquire going businesses at a fair price, we could immediately add their profits to ours and upgrade our per share earnings. We set definite limitations on the companies that we would acquire. 1) ... We decided that any acquisition should serve a large and growing market closer to the consumer than the markets we already served. 2) ... Any new acquisition should be a well managed company and the management should be willing to stay with us after acquisition. We were not interested in buying sick companies with the hope of putting them on their feet. 3) ... We wanted only companies that had demonstrated their ability to operate profitably in normal peacetime periods. 4) ... We were not interested in acquiring companies that needed cash. We decided that we would not acquire a company unless it was adequately financed for at least its present level of operations, and we would be particularly interested in a company that had surplus cash. For the same reason, we decided that we would buy companies for



Safer, Faster Welding with this Double Line Hose

Kinks and tangles in the oxygen and acetylene feed lines are more than an annoyance to the welder, they are a hazard. They can slow up the work, and they can spell danger.

That's why we developed this Tu-Line welding hose ... for extra speed, safety and savings in welding. The red acetylene and green oxygen lines are firmly bonded together with a web of tough rubber ... for *maximum* handling convenience and *minimum* fouling.

We also manufacture a complete line of industrial rubber products: belting, hose, packing and moulded rubber of every construction for every need. Through your Quaker and Quaker Pioneer distributor our research and engineering services are always ready to help you solve any industrial rubber problem.

Write for free folder and name of nearest distributor.



QUAKER RUBBER CORPORATION
Philadelphia 24, Pennsylvania
QUAKER PIONEER RUBBER MILLS
San Francisco 7, California

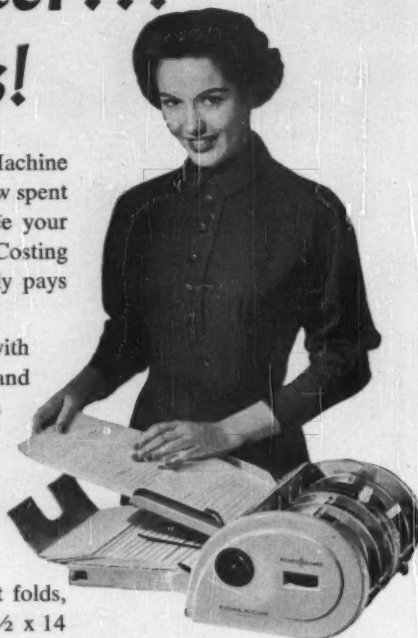
Office folding machine little larger than a typewriter... & costs less!

● This Pitney-Bowes Folding Machine will save any office the hours now spent in costly hand folding—will free your girls for more important jobs. Costing less than a typewriter, it quickly pays for itself in even a small office.

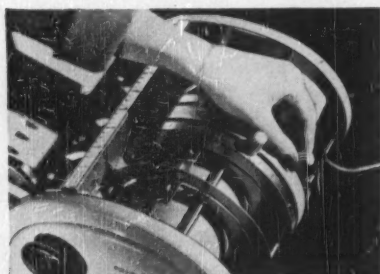
● The FH, electrically driven, with semi-automatic feed, is fast and accurate. It can make two folds at once—and double-fold letter sheets up to 5,000 per hour! (Automatic feed optional at slight extra cost.) Even folds sheets stapled together.

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Let us not rely on the false hope that more and more money at cheaper and cheaper rates will carry us forward against all odds. There is a limit to what money can do. The money climate has been made favorable for agriculture, commerce, and industry. I approve of what has been done; in fact, I advocated it. But at the same time, I warn against the dangers of an overabundance of money. Money will always find an outlet as surely as the sun will rise in the East.

If there is more money about than the forces of production are willing to use, it will find its outlet not in making jobs, not in making employment for the unemployed—it will find its outlet in inflation, in speculation, in stock prices, in the non-productive shuttling of goods from one hand to another at higher and higher prices without adding to real wealth.

There are limits beyond which it is better not to go with money. Too much money, too cheap, like the love of money, can be the root of much evil.

"There is a limit to what money can do."

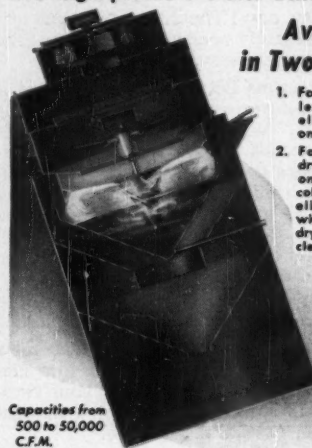
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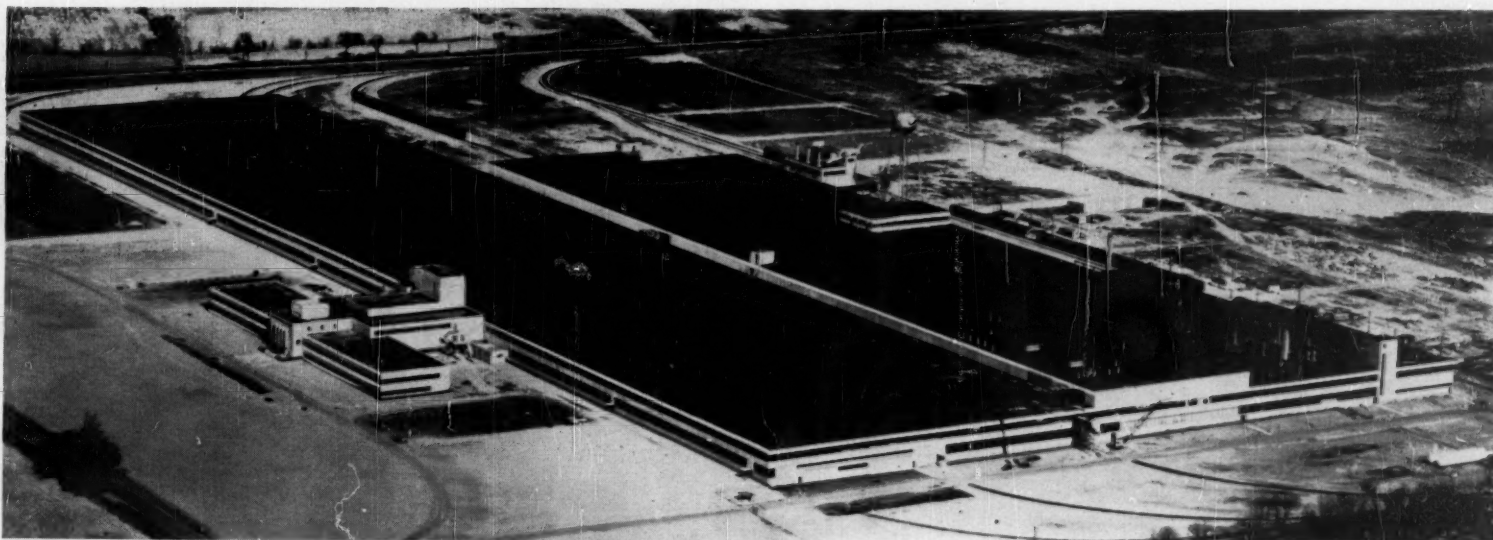
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New Westinghouse Electric Appliance plant in Columbus, Ohio, is largest ever built by company. Built on a 305-acre plot, the plant covers two million square feet of ground, includes office wing and other buildings.

PHOTO
VISIT

Expanding Production by Extending Efficiency

FREE-FLOWING production and assembly lines was the goal of Westinghouse Electric Corporation when they decided to construct their new electric appliance plant in Columbus, Ohio. Need for the plant arose when increased sales and added products began to tax the facilities of their Mansfield, Ohio, operations. Started in 1952, Columbus was producing refrigerators on a modest scale by November 1953, and was officially opened in September 1954. Freezers and other products are to be added later.

In the modern, low, one-story-type building (almost half-a-mile long) wide application has been made of techniques for getting material to and from work stations with the greatest ease and efficiency. Wide manufacturing aisles, conveyors of all types, electric trucks, overhead cranes, and other materials-handling equipment aid in-plant transportation.

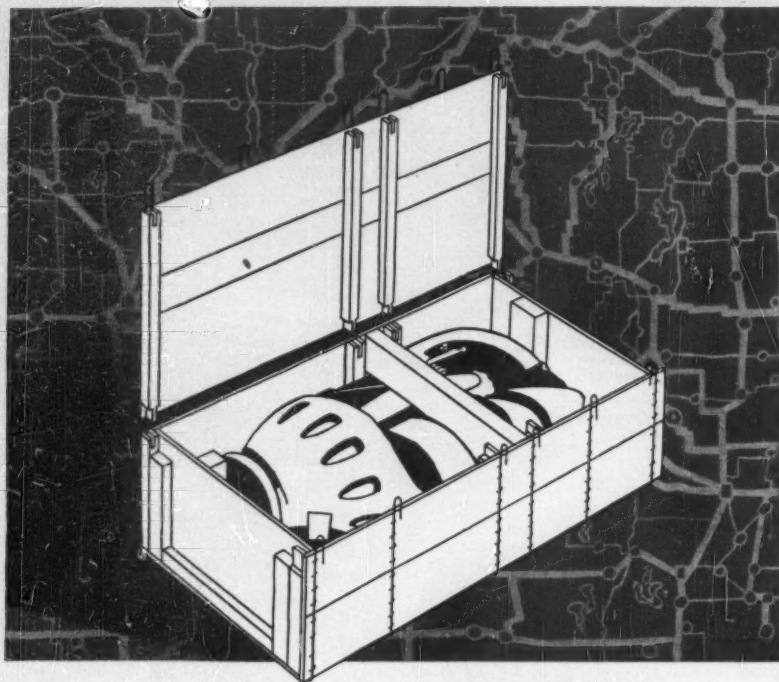
On this and the following pages, we follow the operations from initial production step to final shipping area.



In shearing room the sheet steel, delivered from receiving department by 10-ton overhead cranes, is cut into all necessary sizes. In the background are the large 650-ton double ram presses for forming refrigerator doors.



Shown here are two of the 51 separate conveyor systems that carry material over a distance of 27 miles. Door-shells pass through metal polishing operations before overhead conveyor takes them to metal treatment processing.



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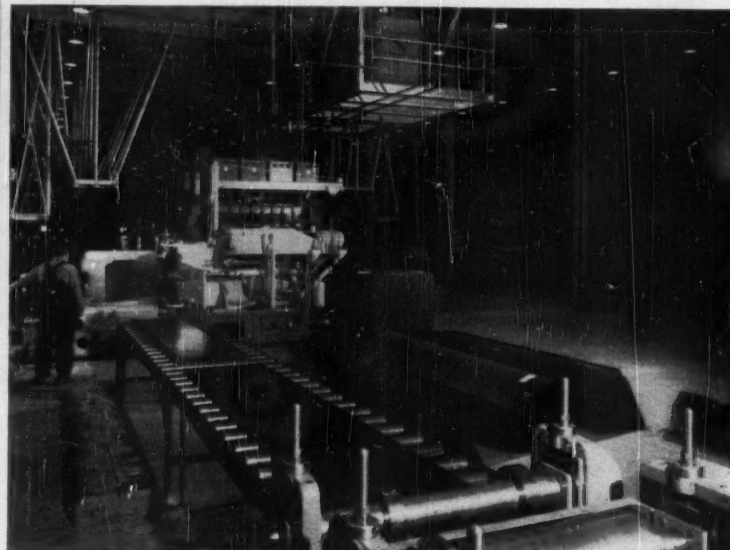
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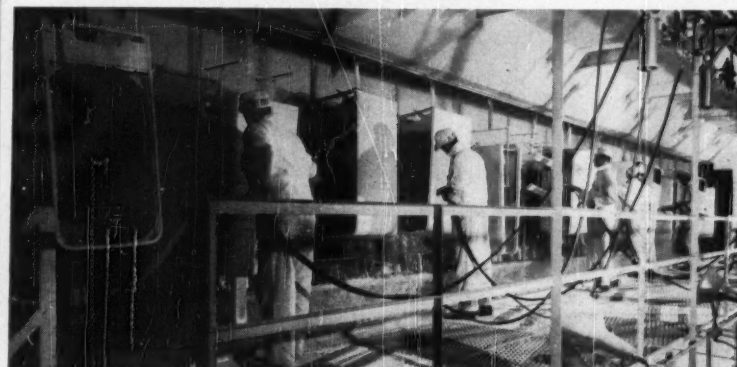
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EXPANDING PRODUCTION

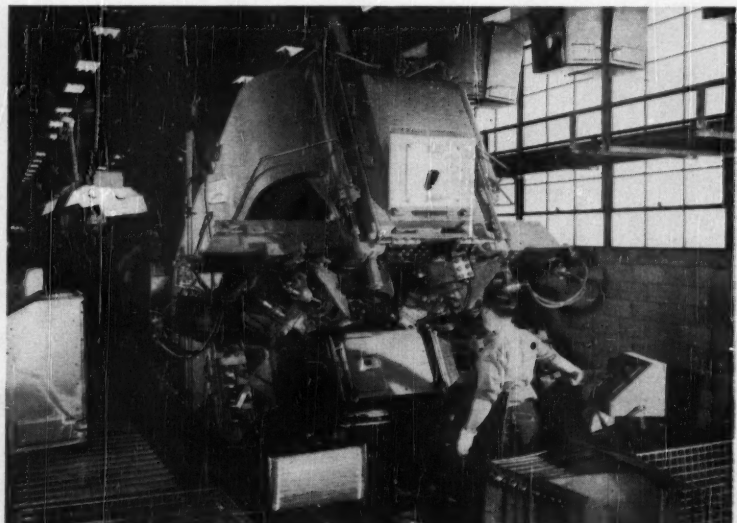
Continued



Beginning as a flat sheet of steel, cabinet-shell is notched, pierced, in one operation, and flange-rolled on machine in foreground in second operation. Roller extension carries form to tangent bender in background.



On longest (4,500-foot) overhead conveyor in plant, door- and cabinet-shells pass through paint-spraying booth. No masks are needed here—forced-air ventilation carries excess paint back to falling sheet of water.



While machines do the major part of the work here, the human element must still be used for feeding some of them. Here operator places top and bottom pieces and skirts of food compartments in six-wheel seam welder.

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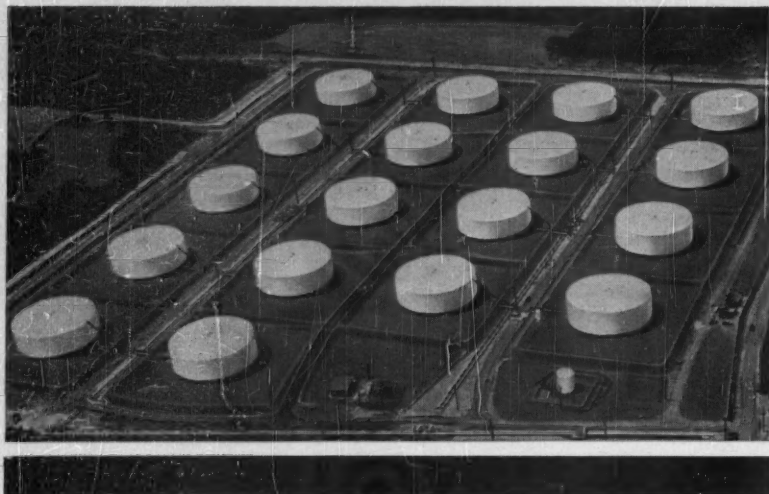
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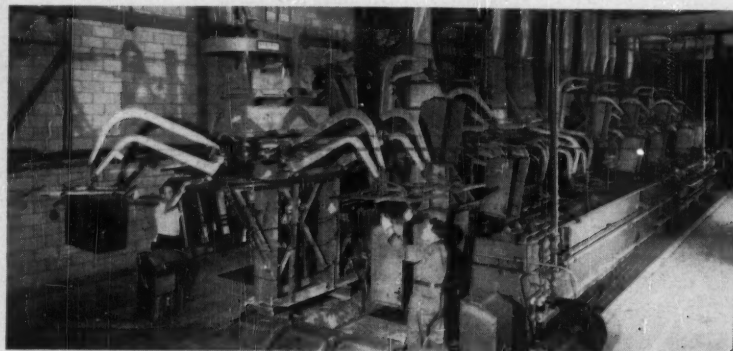
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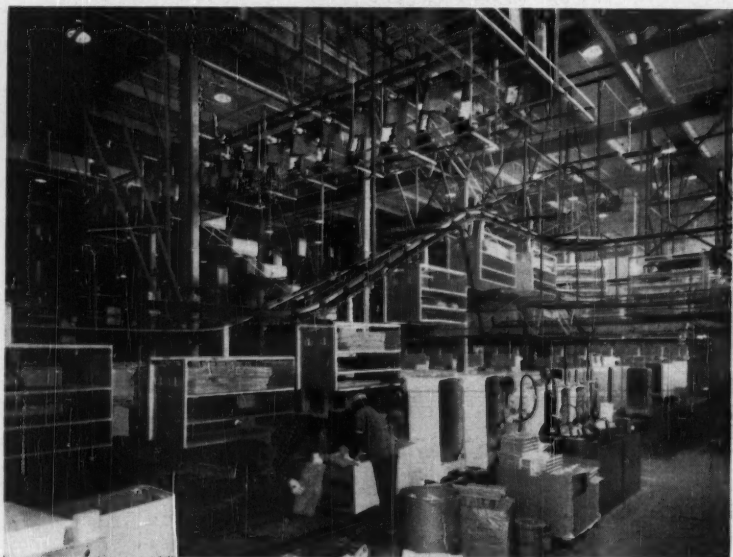
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EXPANDING PRODUCTION

Continued



Once food compartments are attached to the outstretched tentacles of this pickling centipede, they go through a continuous process that removes oils, greases, and metallic filings, coats them with nickel, and dries them.



Shelving on lower conveyor brings precut glass wool insulation and small accessories to assembly line. Each basket carries material for one refrigerator. In foreground, cabinet-shells have welds sealed, insulation added.



Motors, condensers, and evaporators, fabricated and assembled in another section of the plant, arrive by overhead conveyor at final assembly line. Motor-driven floor conveyor carries refrigerators through the assembly.

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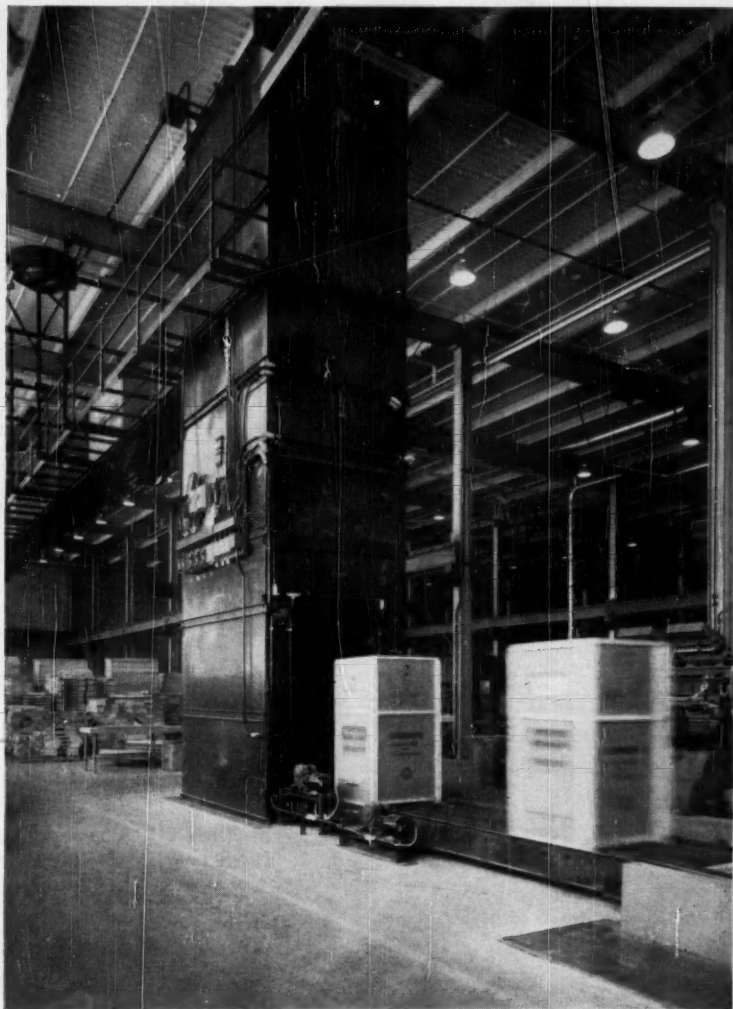
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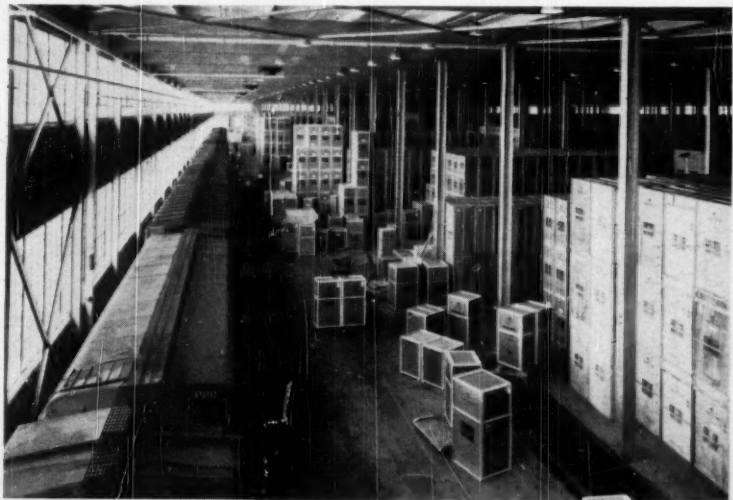


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Continued



Still on floor conveyor, refrigerators are inspected, crated, and shunted to belt conveyors leading into automatic elevator for transfer to warehouse and shipping department. Elevator is timed to take two crates a trip.



Acting like miniature railroads with junction points, sidings, and switching sections, a motor-driven roller conveyor carries crates to designated sections of warehouse. Two railroad sidings inside hold nineteen cars each.

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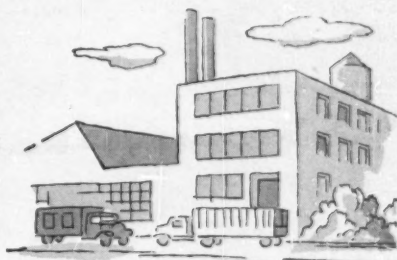
Walter Reed Hospital in Washington, D. C., is filing microfilmed medical case histories of service personnel in Filmsort Jacket cards, using a total of nearly 90,000 Filmsort Jackets. This is one of the first hospitals in the United States to maintain a current case history file in unitized microfilm form. Walter Reed Hospital uses the portable Filmsort Inspector viewer for reference to these thousands of micro-filmed case histories.



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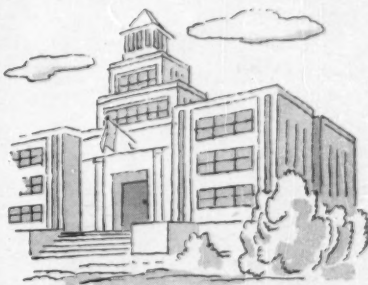
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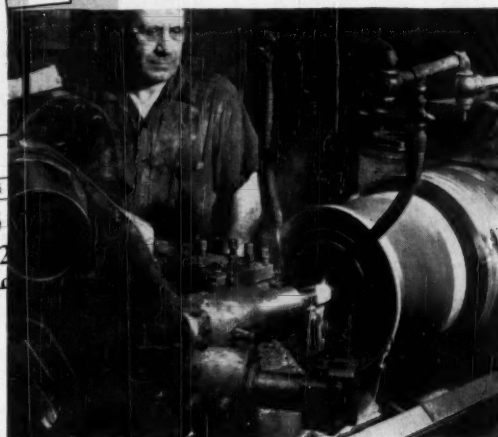
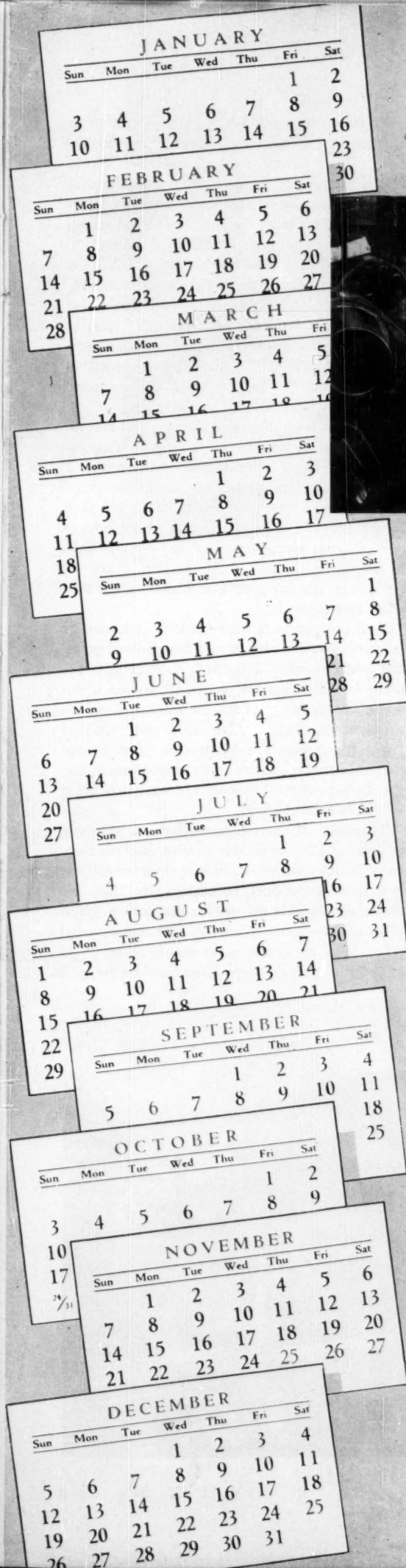
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DEVANEY PHOTOGRAPH

Steps toward EMPLOYMENT STABILIZATION

JOHN L. McCAFFERY

President, International Harvester Company

FOR MORE than 20 years now, the American people have been fascinated by the idea of stability as a general social goal.

This interest is a natural one. Most of us who now hold responsible jobs in industry, finance, labor, and government lived through the great depression. We were horrified by the hardships we saw or experienced then, hardships created by radical changes of prices, employment, and incomes. We want to do everything in our power to prevent another disaster of that kind.

So we have probably done more talking, and more thinking, and undertaken more hopeful experiments related to the ideal of stabilization than any other generation since the beginning of the Industrial Revolution, two centuries ago.

While we have been concerned about stability as a general goal—and mostly with praiseworthy motives—it remains true that people are people, and therefore to some degree inconsistent and selfish.

Our friends in the labor unions, for example, have been greatly concerned about stabilization of income for employees, but their interest in stabilization of income for share-owners—who are frequently the same people—approaches absolute zero.

Business men are greatly interested in the stability of prices and costs; that is to say, *their* prices and costs. As to their suppliers, they take a somewhat different view. Many government

officials, judging by their actions, have certainly had a strong interest in stabilizing taxation and spending.

Yet all these groups—so concerned with stability—are always hopeful that the prices of pork chops, television sets, automobiles, clothing, and other items will somehow go down.

It seems to be an almost universal truth that men are interested in stability only in their capacity as sellers and never in their capacity as buyers.

The one exception to this rule is our common interest in the stabilization of employment, because we all understand that it is to our own interest—whatever our occupations may be—that as many other people as possible be gainfully employed. In this respect, we are all for one and one for all.

This unity is sometimes confused by discussions of such topics as the guaranteed annual wage. The guaranteed annual wage idea is an attempt to achieve stability of income for a certain group of workers. It is related to, but far from being identical with, stability of employment.

Obviously, if we could achieve stability of employment on a wide and general scale, the problem of the guaranteed annual wage would automatically disappear, because stability of income must follow stability of employment. It is far from being certain, however, that the

reverse is true, and that stability of employment will result as a consequence of stability of income. That doubt is what a large part of the argument is about.

All this is preliminary to saying that I am not going to discuss the guaranteed annual wage. I will talk a little about the basic problem of stabilizing employment. I have no over-all solution for this problem, and I will not attempt to offer an analysis of it as it affects the nation.

However, I will try to illustrate from my own business some of the attempts made and some of the obstacles met in trying to grope our way toward more stable employment. Consider this, if you like, as in the nature of a case history. I must admit at the outset that it is not the history of an outstanding success. Neither, I hope, is it the history of a complete failure.

The Harvester Company began its existence many years ago as a farm implement manufacturer. It would be hard for anyone to find an industry more naturally seasonal, more subject to ups and downs, than this business.

To illustrate the point, the typical farm implement plant of 70 or 80 years ago was a small factory in a small town. It made one or two products, perhaps a grain binder and a grain drill, or some such machines. It began production in the Fall and worked through the Winter, making and shipping machines. When Spring came, the plant shut down and stayed shut down until the following Fall.

The employees were not factory workers by profession and probably never thought of themselves as such. They were predominantly farmers and farm boys from the neighborhood of the plant. When the farm season ended with the Fall harvest, they went to work in the plant. When it came time for Spring plowing, the plant closed down and they all went back to their farms for the Summer.

That is the background from which our company came. It did not result from any callousness

on the part of farm implement manufacturers. It was just the natural state of a highly seasonal industry.

In recent years, as business people have talked about the problem of stabilizing employment, one of the suggestions that has been most often made and most widely adopted in industry has been to diversify the line of products.

Our company has done a great deal of that, to the point where we are now engaged in at least six different industries. The later developments of this sort have represented conscious planning on our part. But I must say, as a matter of honesty, that the earlier developments were probably undertaken with no thought of stabilized employment in mind.

Diversification Started

Originally, all farm implements were animal-powered. But starting about 1908 we entered into the manufacture of farm tractors and, at about the same time, we began the manufacture of motor trucks which were originally sold almost entirely to farmers. We were already engaged in two other industries—the cordage industry, through the manufacture of binder twine (and now baler twine), and the steel industry through our possession of a medium-sized steel mill in Chicago which sells a part of its output to Harvester and the rest on the open market, in varying proportions.

Almost 20 years ago we began to get into the industrial power field, through the manufacture of crawler-type tractors and Diesel engines, and that line has now broadened out to become a full line of earth-moving and construction equipment.

Leveling out the peaks and valleys of seasonal employment fluctuation so that the economic year runs smoothly from one end to the other may seem a Utopian objective, but great pressure is being brought to bear for such an accomplishment. Seasonal lay-offs have indirect effects on many other industries, too. The goal is in sight but there are many obstacles to overcome.

We began in a small way in refrigeration in the middle 1930's, manufacturing milk coolers for the dairy farmer. Immediately after World War II we voluntarily dove into the highly competitive refrigeration industry, and we now make a line of home freezers, household refrigerators, air-conditioners, and dehumidifiers.

The result of all this has been that, while the farm market is still the backbone of our business, we no longer rely on it exclusively and many of our products find their chief sales in the urban market. Our sales in the urban market alone, during 1954, probably exceeded in dollar volume the total sales of the company for any year before 1942.

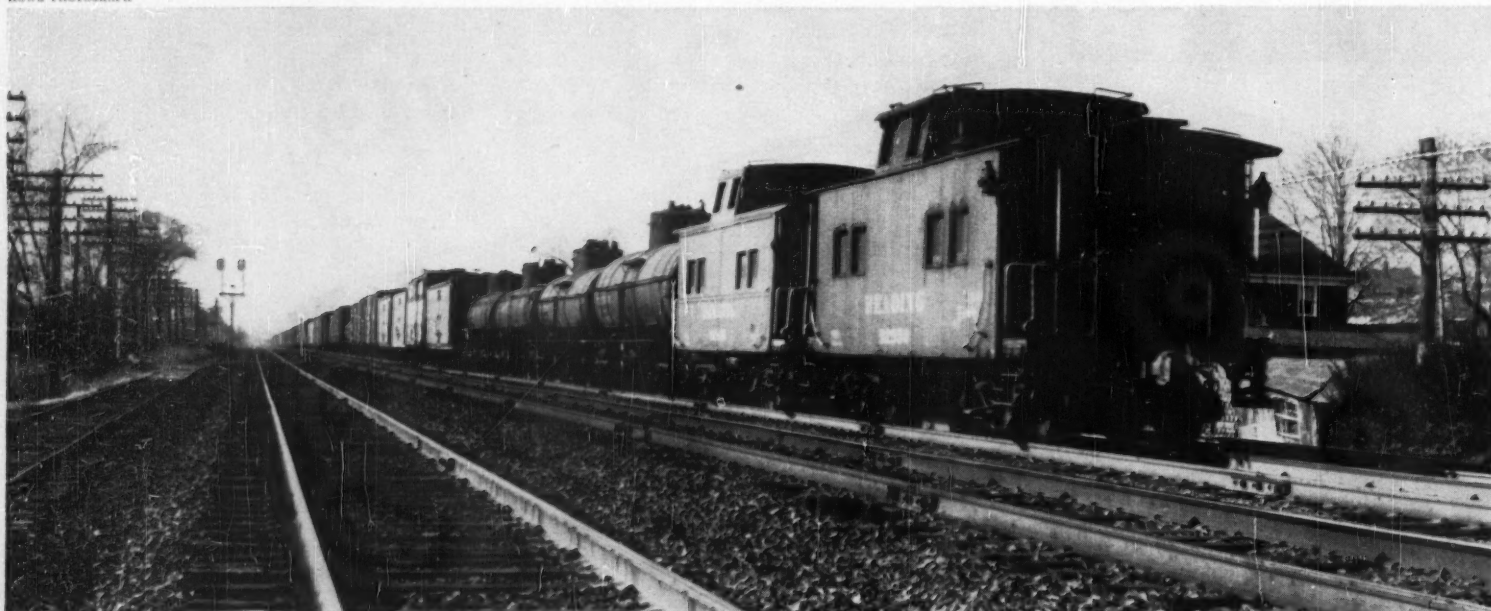
What has been the consequence of all this diversification in terms of stabilizing employment? Frankly, I don't know. I can see how it has stabilized sales and income for the company. I can see that it has created many more jobs than used to exist in Harvester. It has expanded our products, our usefulness, and our employment. It has probably had some helpful effect on stabilizing employment but I can't trace that effect and prove it.

If all our products were made in one plant, I am sure diversification would have helped greatly toward stability. But since our products are made in more than 20 plants, I consider it dubious. When the farm tractor market goes into a swoon, as it did in late 1953 and much of 1954, the employee in a tractor plant is not stabilized much because other employees in, say, the Refrigeration Division are at work on a relatively full schedule.

This idea of diversification led us, however, to another idea applicable to a multiplant company, which does work. This is what we call the principle of product balancing. By that, we mean simply that we try to put into a given plant the products which will give a year-round schedule of reasonably even employment.

Continued on page 68

HOWE PHOTOGRAPH





Dealer-Distributor Protection Plan, devised by V-P E. A. Tracey (above checking returns) of Mitchell Manufacturing Company, pays dealers for unsold air-conditioning units at end of season from fund set aside by company during year.

FINANCIAL TECHNIQUES *tap new markets*

A fast-growing economy is creating a new kind of market. Here's how companies are capitalizing on prospects with little capital.

JAMES K. BLAKE
Marketing Editor

YOUR machine has an application we can use, but we can't fit it into the budget this year. Maybe next year. . . ."

"Sure, I'd like to stock your full line, and I know I ought to, but where is the cash coming from? I can't ask my bank for more credit right now. . . ."

"The market is 85 per cent saturated and I'm losing my shirt on trade-ins. . . ."

There is not a how-to-sell book on the market that tells a manufacturer how to overcome such basic objections as these. The answers lay in a broader sales approach. There is a large potential market which includes manufacturing companies, distributors, dealers, and retail customers with three common characteristics: a good credit rating, sympathy toward your product, unwillingness to pay cash on the barrelhead. If you want these extra sales, you must overhaul your basic selling policies to bring a large market segment in under your umbrella. Here is how a number of companies in industries ranging from

appliances to heavy machinery are doing it. It is a deepening trend.

Early last year the Philco Corporation began financing inventory for its distributors. Philco invested up to \$5 million in common stock and other capital funds of Philco Finance Corporation to start the ball rolling. In addition to capital investment, the corporation established lines of bank credit for its distributors. Major object: to release distributors' own capital to finance increased sales of Philco products, particularly air-conditioning equipment.

Also last year, Philco expanded dealer wholesale and retail finance plans. Their new arrangement with Commercial Credit Corporation was designed to give more of their dealers a dependable source of discount for their retail paper plus giving the dealers a head start on more liberal wholesale financing.

What exactly are the advantages of a manufacturer-owned finance company? C. R. Brogan, vice-president of Refrigeration Discount Corpo-

ration* (American Motors Corporation) spelled them out for a finance conference held by the American Management Association recently.

- A manufacturer-owned finance company is primarily interested in selling your product, not just in lending money or in promoting your competitor's sales equally well.

- It is a traffic builder because it encourages retail purchasers to pay their accounts at the retailer's store.

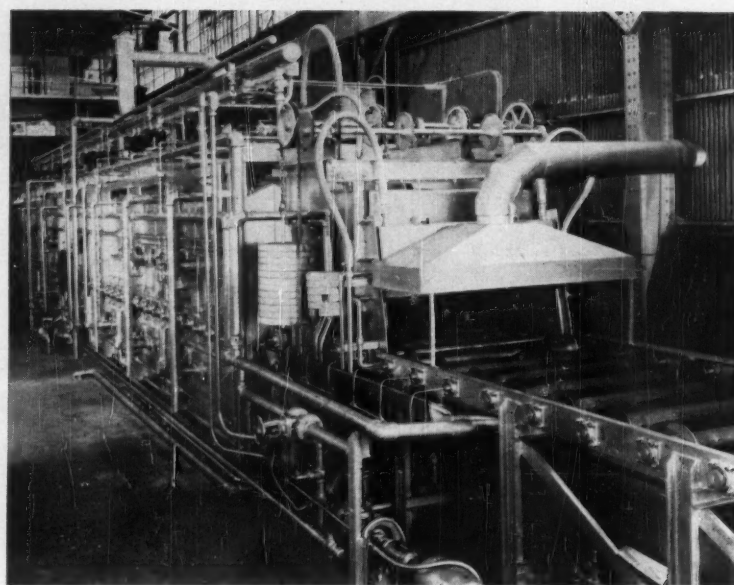
- The company gives dealers monthly reports on the status of customers' accounts and mails promotional material to customers with good paying records.

- Dealers' profits are insured. The company carries life insurance on every retail customer; property insurance on the products in his hands; and property insurance on dealers' inventory financed on a floor-plan deal. The retailer gets protection against the customer who "skips" and makes a profit on any repossessed merchandise.

In addition to financing merchandise movement both from factory to distributor and from



To sell trade-ins, Westinghouse Electric groups one new appliance and two used ones into single-sales package. Higher price of the three-in-one deal makes the package profitable for financing by local lending institutions.



Carbon restoration annealing furnace worth \$200,000, made by Surface Combustion Corporation, is typical of large equipment being sold on the installment plan to the growing market unwilling to dip into its capital.

distributor to dealer, the distributor receives:

- Information regarding sales by models at the retail level, which helps pinpoint distributor buying requirements.
- Close liaison and advice on new dealers and development of existing dealers.
- Special terms to move slow-moving merchandise.

Plusses to the manufacturer are these:

- All financing arrangements are co-ordinated closely with his advertising and sales programs.
- Accurate weekly records show merchandise movement by model in all sections of the country—a valuable tool in production forecasting.
- Similar records at the wholesale level and an accurate inventory of models being floor-planned by dealers provided on a monthly basis are also significant forecasting devices.

Vice-President Brogan points out that these sales-making services do not cost the parent company a penny. His goal is 10 per cent net on investment after taxes.

As those two examples suggest, there is considerable variety of means in shoring up distributor and dealer financing in the push for extra sales. Philco used two—its own financing subsidiary for movement of goods to distributors and an outside financing company for its retailers and their customers. The Kelvinator Division of American Motors uses a subsidiary to handle complete financing from factory to retail customer. But this is just the beginning of the wide variety of techniques being used.

Chrysler Corporation, as part of its program to upgrade and strengthen its dealers, last Spring inaugurated a Dealer Enterprise Plan. On any one of the following situations the plan can go into action:

1. When a qualified prospective dealer should establish a new dealership in a market of sufficient sales potential or when he should succeed

a retiring dealer, but hasn't adequate capital.

2. Where it is desirable for a dealer to buy out inactive partners.

3. Where a successful dealership needs additional capital to expand operations.

Under the plan, the prospective dealer invests a minimum of 25 per cent (but a maximum of his available investment capital) in a new dealership corporation. The dealer receives \$100 par value common and Chrysler, which invests remaining capital needed, receives \$100 par preferred stock. The dealer repays Chrysler from his earnings and Chrysler has sole voting rights until the stock is retired. As President and General Manager of the corporation, the dealer "is paid an appropriate salary."

The dealer, in addition, receives 25 per cent of operating profits as a bonus, but he must use at least half of it to buy back Chrysler's preferred at par. He must also buy and retire each year preferred shares at par in amounts equal to the earnings retained in the business.

One of the most unique plans is Mitchell Manufacturing Company's Dealer-Distributor Protection Plan. Its basic objective is to increase sales of air-conditioning units to dealers and distributors, many of whom are unwilling to carry a normally full stock because of the currently seasonal nature of the selling season and the strong climatic influence on sales. Here's how it works:

For each unit shipped to dealers and distributors between November and August, the company creates from its own funds a reserve of \$3 per unit. As of September 15, the company obtains from its dealers the number of units unsold at the close of business that day. Then, the reserve is divided by the number of unsold units. The dealer receives an amount equal to the unit share of the reserve multiplied by the number of unsold units he has in stock. Last Fall, a melon

of \$365,000 was cut up among 2,700 dealers and distributors.

Westinghouse Electric Corporation offers a trio of financing plans designed to give banks and other lending institutions additional protection so that, in turn, Westinghouse dealers can work out their lines of credit in a more congenial atmosphere.

Plan I is offered to a lending institution that wants maximum protection from the manufacturer and, reciprocally, is willing to earmark the dealer's inventory credit line exclusively for the purchase of Westinghouse merchandise. Westinghouse then agrees to pay 90 per cent of the lending company's losses due to practically every conceivable event for which the dealer, distributor, or employees are responsible short of "war, invasion, civil war, rebellion, nationalization, or confiscation. . . ." For losses due to physical damages by natural causes (fire, explosion, lightning, and so on) the corporation repays 100 per cent.

Plan II offers protection not quite so broad, but still gives lending institutions extra protection. It specifies (its principal feature) that the distributor will repurchase any merchandise that has been repossessed at a price equal to the balance remaining on the loan, plus a specified sum for expenses.

Plan III is primarily for those institutions that shy away from the technical aspects of floor-plan financing and prefer to make ordinary commercial loans. It is similar to Plan II. One key difference is that it is up to the lender to see to it that the distributor was paid the full amount of the loan and the merchandise to be repurchased was originally bought from the proceeds of the loan.

To date, over 4,500 banks and credit agencies are providing financing under these plans.

In addition to its own credit corporation, cre-

ated last year to supplement the plans above, Westinghouse pulled a switch on its "predating plan." Under the plan a distributor places an order one month and pays for it months later. This is a standard pre-Christmas incentive tactic, but in 1954, Westinghouse began using it early in the year to gently prod distributors into stocking more desirable inventory levels.

Predating and Trade-ins

Ekco Products Company also uses a predating plan. It is augmented, however, with specials called "Bonus Bundles" or "Bakers' Dozens," which gives the distributors a stronger package to offer dealers. Dealers and distributors who buy a certain number of bonus items are permitted to buy an additional item at a special reduced price, all predated, of course.

In the consumer hard-goods and in the industrial equipment industries one of the fast-emerging problems combines market saturation and trade-ins. In late 1951 a Westinghouse survey showed, for instance, that 40 per cent of new refrigerator sales involved trade-ins. The figure is much higher now. The problems of the trade—and they are equally valid for most hard-goods industries—were these: improperly calculated trade-in allowances; improper reconditioning; too little sales effort behind used merchandise and lack of real information on the used-appliance market. The Westinghouse attack began in 1952 with pinpointed researched material covering appraising, reconditioning, displaying, advertising, finding and selling the market for refrigerators. In 1953 the plan was expanded to cover all three of the high-saturation white appliances—refrigerators, ranges, washers. Sales of the instruction packages to distributors over these two years ran to more than 3,800.

Last year, a new twist evolved out of the trade-in sales program. Sales management developed a "Newlywed Special" plan—a combination offer the dealer makes to prospects. He offers one new major appliance and two used appliances in a package. The benefits work out to these:

1. Extra profit on trade-ins.
2. A new class of customers coming into the store.
3. A used-appliance customer soon becomes a prospect for a new-appliance sale.
4. The package deal makes the price of trade-in appliances high enough to make the paper attractive to the bank for financing.

In the industrial-equipment field, there is a similar trend toward definite policies on trade-ins and rebuilds, rather than the former "each deal on its own merits" operating policies. The Norton Company, Worcester, Mass., announced last month that it is expanding rebuilding operations and has determined a list of thirteen machines which it will rebuild for a firm price of 45 per cent of the price of a similar new machine with the same equipment.

Norton is willing now to accept trade-ins on a "limited number of readily salable machines."

Finally, the company is considering plans for time payments on new machines and is preparing to lease certain standard models.

Lewis-Shepard Products, Inc., of Watertown, Mass., is another company to formalize its trade-in program last year. L-S also decided to make trade-in offers on trucks of other manufacturers or get the best possible price on the used-truck market for a prospect.

In the machinery, machine tool, and materials-handling equipment industries, leasing as a spur to additional sales spread rapidly last year and will undoubtedly gather new impetus this year. A leasing program appeals primarily to potential customers who want to preserve their working capital. This is not an insignificant market. The Clark Equipment Company, for instance, ran a six-month test under which materials-handling industrial trucks and bulk-handling equipment were leased under a bank-financed plan. More than \$2 million worth of trucks were leased. The Gisholt Machine Company, Madison, Wis., did \$125,000 worth of leasing between the end of April and the beginning of September without any advertising or promotion except for one news release to the press.

Leasing is spreading to other industries. Last Fall, the Polarad Electronics Corporation, Brooklyn, N. Y., joined the crowd. Polarad's controller told their representatives one of the advantages in leasing electronic equipment is that "The government contractor who rents test equipment is in a better position to become a successful bidder than the contractor who has to buy test facilities and include the full cost in his selling price."

In general, the lease terms follow a definite pattern (see DR&MI, August 1954, page 23). The lease runs for a specified number of years with the right to terminate or purchase after, usually, the second or third year. Kearney & Trecker Corporation's program, for example, involves three plans. All are seven-year agreements, but the termination or purchase options vary from the end of the first year, to the end of the second year, to the end of the third year. The rental proceeds do not apply to the purchase price, which is based on the cost of rebuilding and the resale market values.

Not all lease programs are similar to this. In the textile industry the Universal Winding Company, Providence, R. I., is offering a plan which provides for purchase only at the end of a five-year lease at its then fair market value. As an alternative, Universal will continue the lease for another five years at 5 per cent a year of the original cost price. The company thinks, but does not guarantee, that by avoiding any implication that the customer is acquiring an equity in the machine by the payment of rent, the Internal Revenue Service will allow rental payments as tax deductions.

In the actual handling of equipment leasing, industrial companies are developing several variations. Here are some of them:

The Automatic Transportation Company, Yale & Towne's electrical industrial truck manufacturing subsidiary, has operated a truck-leasing program for over a year. In practice, however, Automatic sells its equipment to the M. H. E. Corporation, another subsidiary of Yale & Towne, which does the actual leasing to customers.

The Van Norman Company's long-term lease plan and its ten-year installment sales plan on machine tools are financed through the C. I. T. Corporation, the industrial financing subsidiary of the C. I. T. Financial Corporation.

Installment buying is another technique more and more companies in widely different industries are embracing. In recent months, such firms as Lewis-Shepard (materials-handling equipment), Surface Combustion Corporation, Toledo, Ohio (industrial furnaces and air-conditioning equipment), and James Lees & Sons Company, Bridgeport, Pa. (floor carpeting) have all made this move to build a new market into their sales program. Another sales policy coming into fashion is short-term renting, which captures that market segment which either works on contract or is engaged in highly seasonal work.

The Shape of the Market

All of the techniques described here are calculated to sell what might be termed the marginal market. The market itself is created by the demands of a dynamic, expanding economy, which puts growth at a premium, higher living standards at a premium and consequently places heavy pressure on cash reserves. The nature of the market can be identified by the characteristics of the techniques used to sell it. The Mitchell plan, for instance, is designed to stimulate sales to dealers of a new product with a volatile selling season.

Company-sponsored financing of time payments at both the industrial level and at the distributor-dealer-retail customer level is tacit recognition of a mid-twentieth century fact—that many of your customers have always been buying on time via limited credit from the manufacturer, short- and long-term bank loans, or through finance companies and capital issues, though their payments to you have been made with a single check. Companies using one of the many financing plans add a new promotion feature—one-stop buying and financing—which captures more of this market segment, and also gain the extra control (and profits) that comes with managing their customers' financing. Leasing equipment carries time-buying one logical step further by giving the manufacturer a foot in the door to the market that prefers not to buy either outright or on time. In many respects, it is theoretically similar in market appeal to a conditional sale or a trial period, and when an option to buy is included, as it often is, the identity of appeal is even more marked. All of these marketing trends are deepening and growing. Is your company growing with them?

Fitting your product to the ATOMIC AGE

PART I: WHAT TO SELL WHERE

ANNESTA R. GARDNER
Industrial Editor

An industrial market is growing in the wake of the atom bomb. It will be a good market for those who are ready with what it needs—and it needs many things, from overshoes to overhead cranes. This two-part article, the second section of which will appear next month, tells what and where you can expect to sell, and when and how you can sell it.

YOU may never have a nuclear reactor in your basement, or even a physicist in your plant.

But, no matter what your product, the atomic energy program can help you make it better and move it faster, starting right now.

Companies mining and refining atomic fuels, and those building and operating nuclear reactors, are in the market for shoes and ships and sealing wax, and cabbages—and plenty of king-sized equipment.

The Atomic Energy Commission is spending something over \$100 million a month for construction, and its operating budget is close to \$1 billion a year. On its shopping list, and those of its contractors, are furniture and hardware, cement and chemicals, lumber, laundry equipment, hand tools, valves, and railroad supplies.

W. E. Abbott of North American Aviation estimates that the cooling system alone for a 100-megawatt (100,000 kw), sodium-cooled, graphite-moderated reactor would call for almost \$6 million worth of pumps, heat exchangers, drains, and so on. (This does not include the cost of the reactor container or of the steam generator, which would account for a good \$3 million more.)

And that's only the beginning. Quite outside the Government program are the many indus-

trial concerns using such reactor by-products as radioisotopes in research and production. Among these are foundries and metalworking plants; textile, paper, chemical, and tobacco manufacturers; and processors of rubber, ceramics, and plastics.

These companies, too, need all sorts of materials and supplies—protective clothing and equipment and remote-control devices, rubber gloves, overshoes, aprons, face shields, masks, tongs, shields, cranes, conveyors, and even television transmitters and receivers.

No one of these, perhaps, represents a major new market right now. But together they form a sizable and growing group.

More than a thousand industrial concerns now use radioisotopes; and isotope shipments from Oak Ridge National Laboratory are running at the rate of almost 10,000 a year—nearly twice what they were five years ago.

Construction of commercial reactors can not, of course, be expected to proceed quite so fast. A radioisotope laboratory can be set up for a few thousand dollars; while even the "cheapest" research reactor is likely to run close to six figures.

Nevertheless, the number of research and isotope-producing reactors built in the next few years will probably be quite respectable. Armour Research Foundation, Battelle Memorial Institute, and several other organizations already have plans for obtaining reactors; and American Machine & Foundry, Babcock & Wilcox, General Electric, and North American Aviation stand ready to build them.

Eventually, the market for nuclear reactors—particularly the smaller "packaged" units—may be very large indeed. As Walter F. Friend of Ebasco Services Incorporated points out, "nuclear reactors may someday be used not only to run central station power plants, but also to supply steam for district heating systems, and for industrial heat and process applications." They already look encouraging as a source of energy for conversion of sea water to fresh water, and may also provide brand-new methods for chemical production.

In the future, it's quite likely that both hos-

pitals and industrial companies will build their own reactors to produce neutron beams and radioactive isotopes as needed. As other promising possibilities—cold sterilization of foods and drugs, vulcanization of rubber, treatment of plastics, and processing of chemicals by means of atomic radiation—become practical realities, both isotope and reactor applications will broaden tremendously.

A great many products can be sold to all of these concerns "as is"—as the photographs on the opposite page and on pages 38 and 39 show. But there are, perhaps, even greater sales opportunities ahead for those companies which are willing to spend the time, money, and effort to develop new products and adjust old ones to the specific needs of the atomic age. There is a need for everything from new peelable paints that can simplify decontamination to comfortable, but disposable, lab coats. Some of those opportunities are outlined on the following pages. Others—and the design and materials problems they pose—will be discussed in the second section of this article, to be published next month.

Still another way—and an important one—in which products and production lines can benefit from the atomic age is by taking advantage of the many technical developments stemming from atomic energy production.

New thickness gages and liquid-level gages, machine shop safety devices and density-control instruments can be designed, using the radioactive isotopes which are by-products of nuclear reactors (see page 41).

There are opportunities, too, to find new products in the continuing stream of Government-owned patents released for licensing by the Atomic Energy Commission. A list of these may be obtained from the Patent Branch, Office of the General Counsel, Atomic Energy Commission, Washington, D. C.

Getting into the atom business will not always be easy. There is red tape to be cut, and there are design problems to be solved. But the stakes are high; the chances for success good; and the rewards well worth achieving. Pictures and text on the next six pages show how and why.

What is needed by atom users

Like most pioneers, the companies using radioactive isotopes (activated "tagged" atoms) in research and production have had to make, and make do. They've had to build their own tools, or borrow them from other fields. Now, more than 1,200 industrial concerns are using or preparing to use reactor-produced isotopes. It's high time industrial suppliers took the initiative.

The pictures here, from Colgate Palmolive's fine new radioisotope laboratory, show how familiar types of equipment can be put to work in isotope research. In this case, Colgate is using a long-lived isotope, but one whose radiation is not very penetrating, so heavy shielding is not required, though precautions must be taken to prevent direct contact.

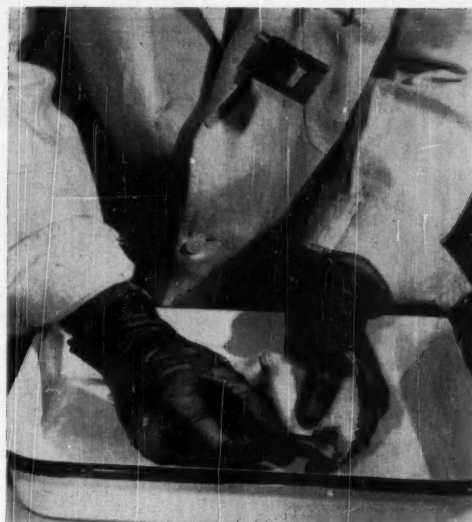
This study is a good example of how radioactive isotopes can be put to work:

A few months ago, Colgate developed a new antidecay compound for toothpaste, *Gardol*. It looked very good, but the big question was, how long would it be effective? Would it remain on the teeth all day, or only for a few minutes?

That would be difficult to answer by ordinary chemical or physical means; the amount of material involved is so small. Yet tagged atoms can do it. These atoms are chemically the same as ordinary ones and go through all the usual chemical reactions. But, having been made radioactive in a nuclear reactor, they are marked by their radiation, and can be detected—even in small amounts—by an instrument called a Geiger counter.

When tagged *Gardol* is used to brush the teeth of a test animal, it is only necessary to keep watch with a Geiger counter to find out how long the compound stays put. (The actual procedure is more complex, but this is the basic principle.)

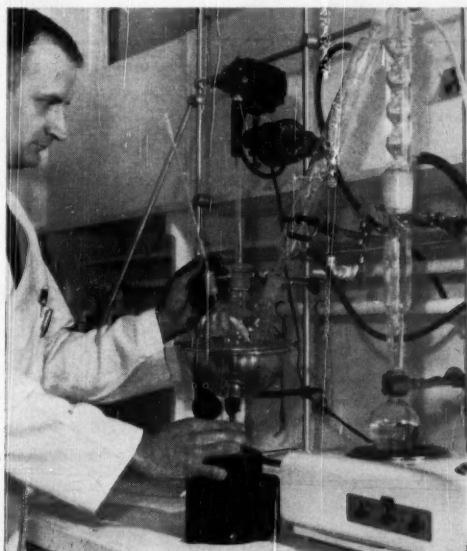
In the same way, tagged atoms can be used to study engine wear, the action of dyes and detergents on textiles, compounding of and wear of rubber, and a host of other industrial problems.



Rubber gloves are among many standard items used in Colgate lab. Here, they serve as radiation shields as well as doing their regular job.



Peelable paint simplifies decontamination of walls, workbenches; prevents radiation build-up that might otherwise become a serious hazard.



Hot plate helps to prepare compounds for *Gardol* study. Note peelable paint on wall, shelf.



Blender also aids atom study. It proved so valuable in research, maker now builds lab model.

These can be blue-chip customers

Who will buy atomic-age products? All of these concerns, and many more, including half-a-hundred leading public utilities, are now preparing to build or operate

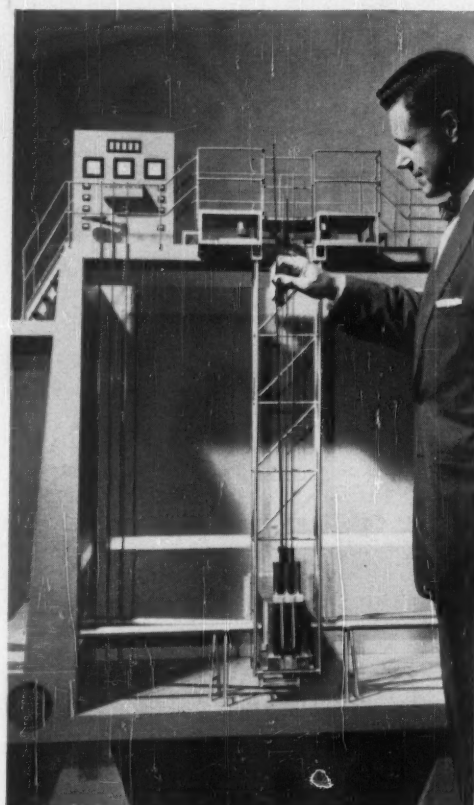
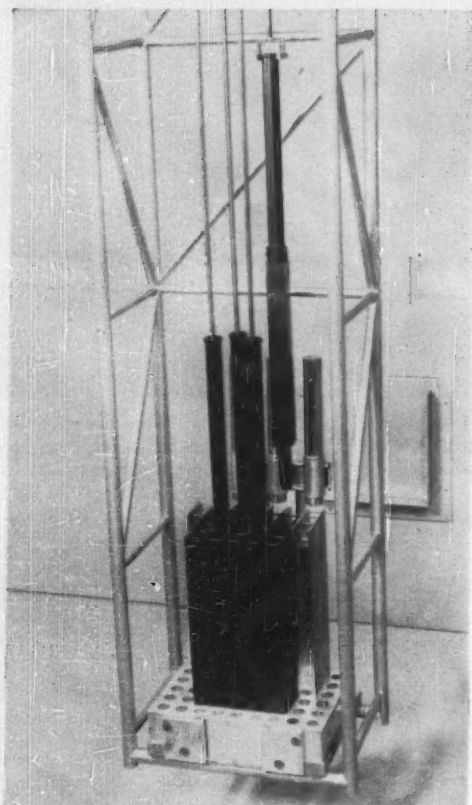
nuclear reactors or to supply major components for them. Starred companies are among those now operating AEC-sponsored research and production reactors.

Allis-Chalmers Manufacturing Company
American Locomotive Company
American Machine & Foundry Company
Babcock & Wilcox Company
Bechtel Corporation
Bendix Aviation Corporation
Blaw-Knox Company
Carbide & Carbon Chemicals Company★
Diamond Alkali Company
E. I. du Pont de Nemours & Company
Ebasco Services Incorporated

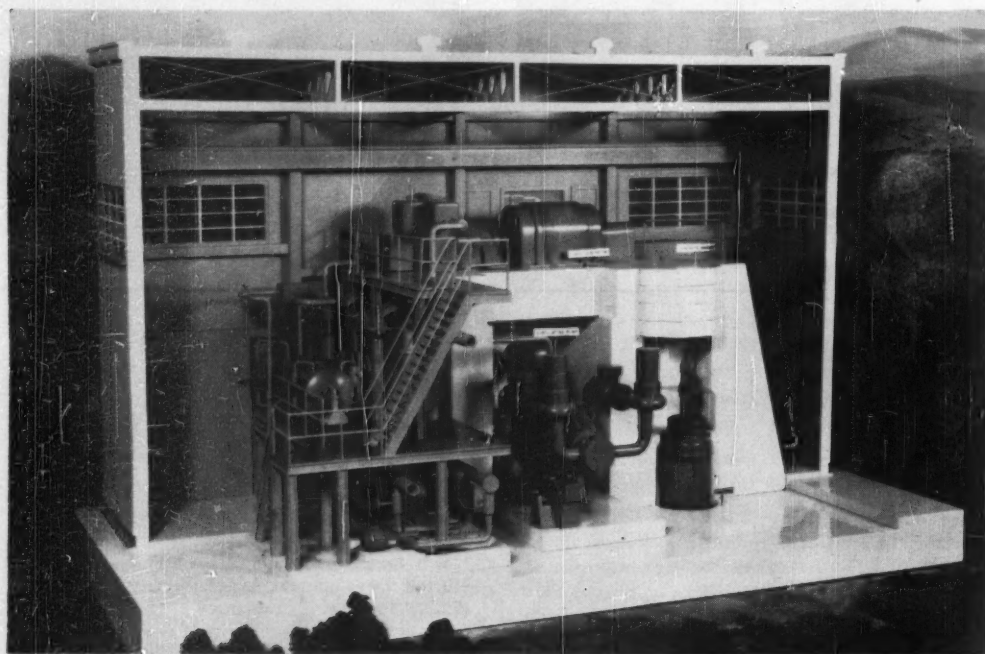
Fluor Corporation Ltd.
Ford Motor Company
Foster Wheeler Corporation
George A. Fuller Company
General Dynamics Corporation
General Electric Company★
Gibbs & Cox
Goodyear Tire & Rubber Company
Kaiser Engineers
M. W. Kellogg Company
Walter Kidde Nuclear Laboratories

F. H. McGraw & Company
Minnesota Mining & Manufacturing Company
Monsanto Chemical Company
North American Aviation, Inc.★
Nuclear Development Associates, Inc.
Phillips Petroleum Company★
Stone & Webster Engineering Corporation
United Engineers & Constructors, Inc.
Vitro Corporation of America
Westinghouse Electric Corporation★
Worthington Corporation

Reactor requirements are many and varied



Unitized design brings flexibility to reactor construction, can open door for many companies to supply component parts. Note basic simplicity of reactor core (close-up at left). This is an American Machine & Foundry model of a water-cooled, water-moderated "swimming pool" research reactor.



Packaged reactor, designed by AMF for use in remote areas also features unitized construction with standardized components. Here, complete package includes pump and turbine generator (center) as well as power plant (right). It could supply heat, power, and light for a fair-sized community.

More than a dozen different kinds of atomic reactors are now on the drawing boards, with many more to follow.

That could make it tough for the would-be supplier. However, standardization of reactor types is already getting under way, and many products can be used in several different models.

Pictured at the left are two types of reactors designed to permit use of standardized components. They rate a close look by makers of machine parts, switch boxes, motors, instrument dials, and many other industrial items.

In exploring atomic markets of the future, a good place to start is with the nuclear reactors themselves—to find out what they are and what they need.

Best-known and oldest of the reactors is the graphite "pile." In the graphite pile, the fuel is in the form of solid uranium slugs, metal-clad for protection. The coolant is air, and graphite serves as the "moderator," the material that slows neutrons down so that atom-splitting proceeds efficiently.

This basic type of reactor, when constructed for power production, uses water under pressure (or molten sodium) as a coolant, and has an auxiliary heat exchanger which extracts the heat and puts it to work in a regular power-generating system. (Incidentally, the term "atomic pile," once generally applied to chain-reacting nuclear furnaces, is now frowned upon as undignified and old-hat. "Nuclear reactor" is preferred.)

Quite different is the "homogeneous" reactor, in which the fuel may be a liquid—uranyl sulfate or, as in a new Brookhaven National Laboratory design, a molten uranium-bismuth alloy.

In the homogeneous reactor, the fuel itself is the coolant, and there is no need for cladding. The fuel can be circulated in and out of the reactor, and can be piped through the heat exchanger. In this design, pumps and valves take the place of the push-rods and levers which are used to move the solid uranium slugs that serve as fuel for the first type.

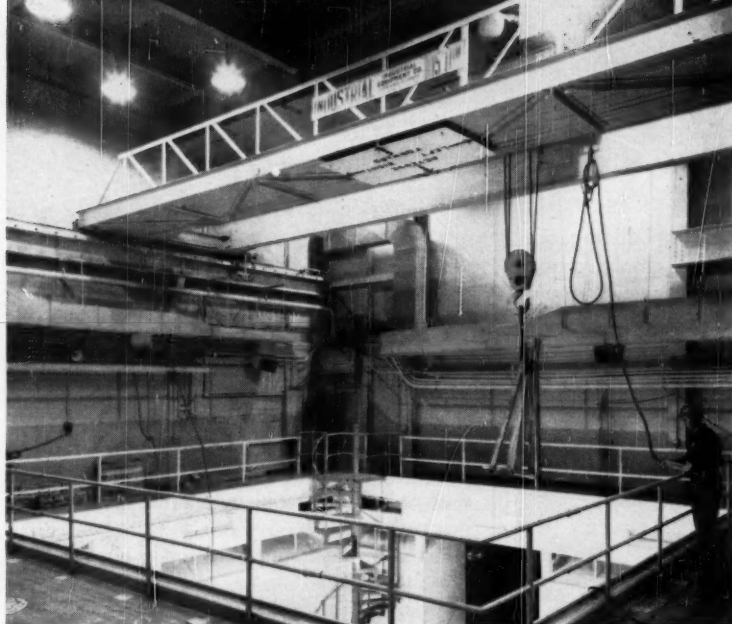
Thus, one kind of reactor is, in essence, a solid-fuel boiler furnace; while the other is much closer to a chemical plant.

Obviously, the requirements for these reactors differ greatly in some respects. Yet, as mentioned above, many types of equipment can serve them both.

The photographs on the opposite page show some of this broadly useful equipment at work. Most of them were taken at the AEC's National Reactor Testing Station near Idaho Falls, where the Materials Testing Reactor (MTR) and the Submarine Thermal Reactor (STR) are located.

The STR, built by Westinghouse, was the land-based prototype of the nuclear engine for the first atomic submarine, the *Nautilus*. It is still being operated as an experimental unit.

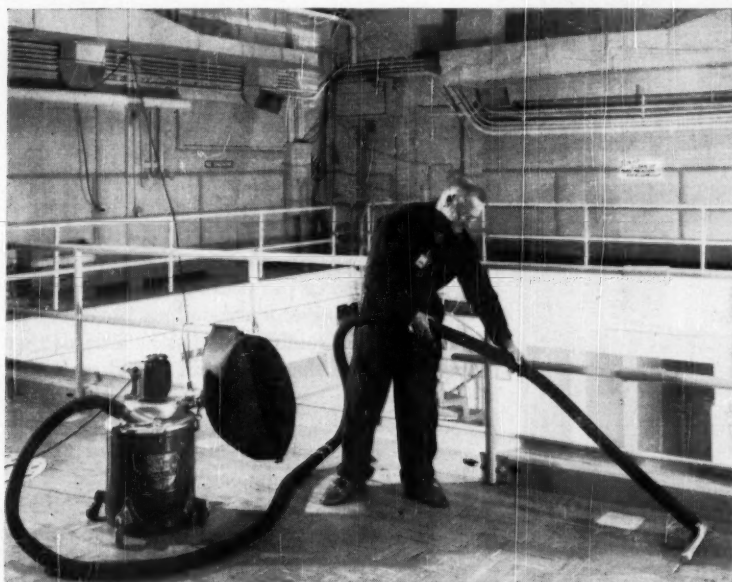
The MTR, designed by Argonne and Oak Ridge National Laboratories, is operated by Phillips Petroleum Company. It has recently been opened for industrial use.



Standard industrial equipment finds many jobs in atomic plants. Crane, mounted above discharge pit of prototype submarine reactor at AEC Idaho station, simplifies handling of heavy containers for radioactive components.



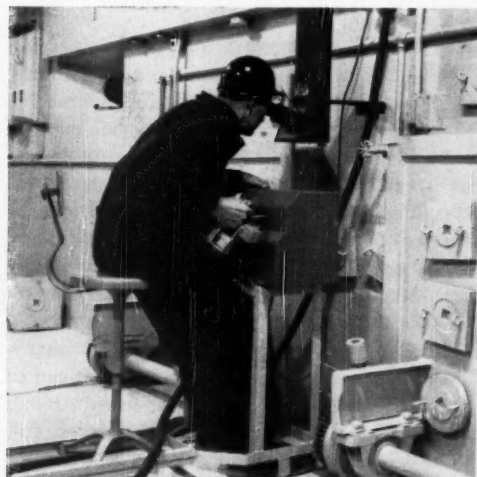
Straddle truck, of type originally designed for lumber industry, handles lead-shielded containers with ease and safety. This is Materials Testing Reactor installation, operated by Phillips Petroleum Company for the AEC.



Vacuum cleaner helps keep reactor area spic and span, picks up dust for safe disposal. For both cleanliness and safety, workers wear plastic boots and lint-free clothing. This is another view of the pit area pictured above.



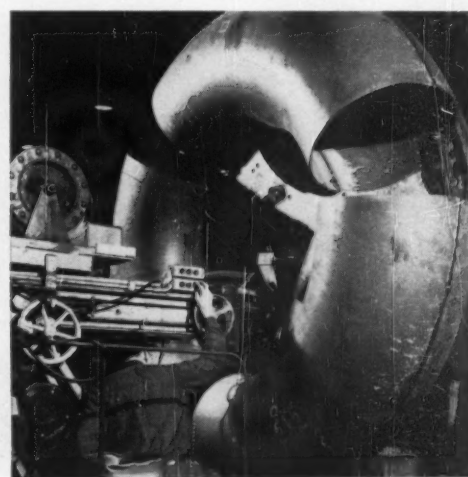
Swabs and slickers are just as important around reactors as they are in the Navy. Phillips Petroleum employees wash down chemical processing equipment at AEC Idaho station as part of decontamination procedure.



Office stool, built into hot cell mechanism, is used by Westinghouse technician while he manipulates radioactive materials by remote control.



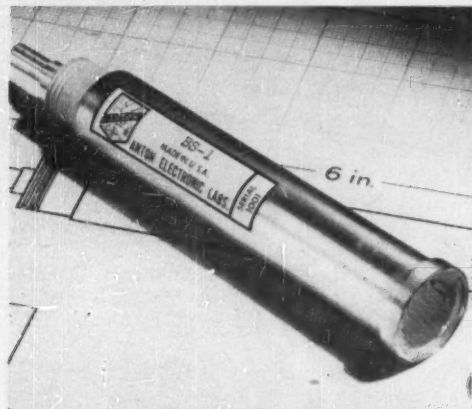
Circular stairways serve reactor just as they do industrial plants. Here, Westinghouse engineer descends to inspect water pit before it's filled.



Special piping is required for reactor set-ups, but fabricating know-how comes from other fields. American Locomotive makes this pipe.

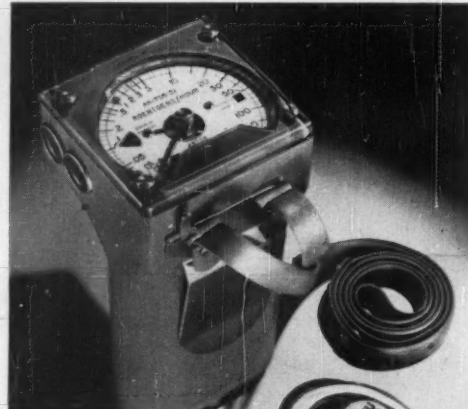
One company's experience

Proof that a small company as well as a big one can profitably serve the atomic age is the record of Anton Electronic Laboratories. Starting with its basic product, an electron tube, it designed a radiation meter, a counter, and several other

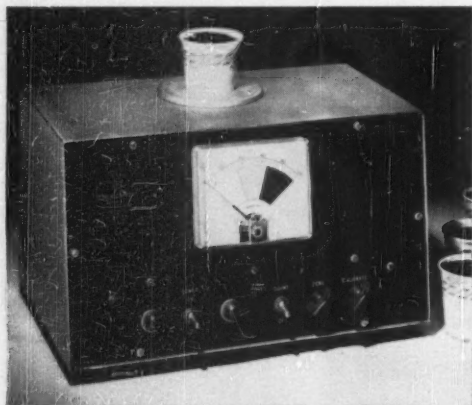


Counter tube is Anton's basic product, was starting point for its new atomic-age products. It's used in radiac (right), computers (below).

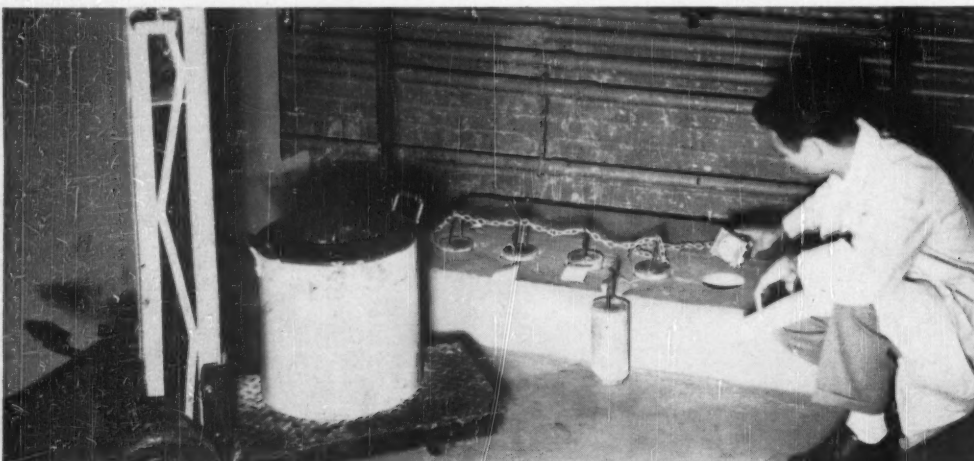
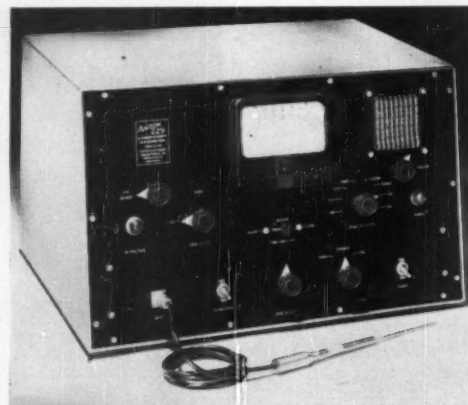
items; broadened its market by building civil defense instruments and special, simplified units for ore assayers, hospitals, and other isotope users. Plenty of problems have to be solved, but Anton finds it's worth the effort.



Radiation meter, made to Navy specifications, has its own built-in radioactive test source. Note also smooth surface that facilitates cleaning.



Several types of radiation computers are now made by Anton; including simplified model for uranium ore assays (left), and a ratemeter for general medical and industrial laboratory work (right). Newest in this line is a computer-indicator that may be used by operators of commercial reactors.



Concrete vault is needed for safe storage of radioactive materials used to test instruments like those above. This is one of many special requirements that must be met by would-be suppliers of new atomic-age products. Anton also built its own equipment to purify gases for counter tubes.

How to get into

How does one get into the atomic market? How can a company take advantage of the product, sales, and production opportunities it offers?

The best way to start, obviously, is to learn a little bit about reactors, isotopes, and the broad problems of the atomic age. A list of information sources—books, booklets, motion pictures appears on page 42.

Actually, the atomic field covers not one business but three:

First, it is a market for established products which can be sold "as is."

Second, it is a market for modifications of established products—modifications that take into account the special problems and hazards of atomic energy production.

Third, it is a market for brand-new products—items designed specifically for the atomic age.

The first two groups account for by far the largest number of items, though the third is perhaps the most interesting and, in some ways, the most rewarding.

The modifications required for the second group (and for many products in the third group as well), are those which help to combat the possible effects of nuclear radiation, temperature and pressure on the soundness of the equipment itself; to minimize radiation hazards that might occur if the equipment leaked or failed; and to achieve certain special nuclear qualities.

As Frederick H. Warren of General Dynamics Corporation pointed out to the Third Annual Atomic Energy Conference of the National Industrial Conference Board, this often means working with costly and hard-to-handle materials requiring new production techniques and a high degree of technical skill. And, it may call for a good deal of engineering development work on the part of the prospective supplier, even when the basic product design is set.

How, then, can a company prepare itself to meet these requirements?

Speaking to the last meeting of the Atomic Industrial Forum, John Landis of Babcock & Wilcox outlined the steps his firm took:

B&W began with laboratory investigations on the special materials required for reactor construction. It offered its services to, and entered into co-operative research with, more than a dozen other companies studying reactor problems. It designed and built several relatively simple heat exchangers and pressurizing tanks.

Now, after several years, B&W knows what it can do, and what type of work is best suited to its particular abilities. It has its own Atomic Energy Division, and it's ready to move full steam ahead with design and construction of complete reactors.

For companies whose plans are less ambitious and whose products already meet the needs of

New products of the atomic age

the atom business

the atomic market, the procedure is, naturally, not as complex. But even those companies will face new problems.

For instance, it's important to remember that now, and probably for a long time to come, government agencies will control or strongly influence the sale of atomic products. It will be necessary to deal with those agencies as customers, and often to obtain their approval of products which are to be sold to industry. That does create difficulties, but they need not be deterrents, even for the small company.

Anton Electronic Laboratories, Brooklyn, N. Y., is a good example. This company is finding new sales opportunities by developing counters and radiation detectors for uranium prospectors, hospitals and industrial laboratories, as well as for government use (see photographs, opposite page).

It's not all peaches-and-cream, of course. Says Herbert Kalisman of Anton, "There are a few hurdles one doesn't ordinarily meet in industry. But if they're recognized, and allowance is made for them, they aren't too high to get over."

He offers these suggestions to other companies about to enter the field:

1. Before you tackle the atom business at all, decide what your company wants to do, and what it can do. List your plant facilities, and be sure you know their limitations.

2. Be prepared for the fact that there will be plenty of paper work and that it will take time to get approvals and authorizations. Allow for this kind of delay when you set up production schedules.

3. Start easy. Try a relatively simple item first. Even for "simple" products of the atomic age, a good many special problems may have to be solved, as indicated above. For instance, Anton engineers had to devise a radiation simulator—a harmless, built-in radioactive test source—for their radiac detector so users could check calibration of the instrument without being exposed to dangerous radiation.

For the supplier of atomic-age products, a simulator will rarely suffice. In most cases, he will have to set up his own radiation laboratory for product testing, with all the hazards such a laboratory may entail.

That brings up another point: It's a good idea to see your insurance agent and your state Department of Health and Department of Labor representatives as early as possible in the game—and keep in close touch with them. In the past two years, for example, New Jersey has added a new chapter on radiation to its Sanitary Code and set up a Radiological Health Program. Both have far-reaching effects.

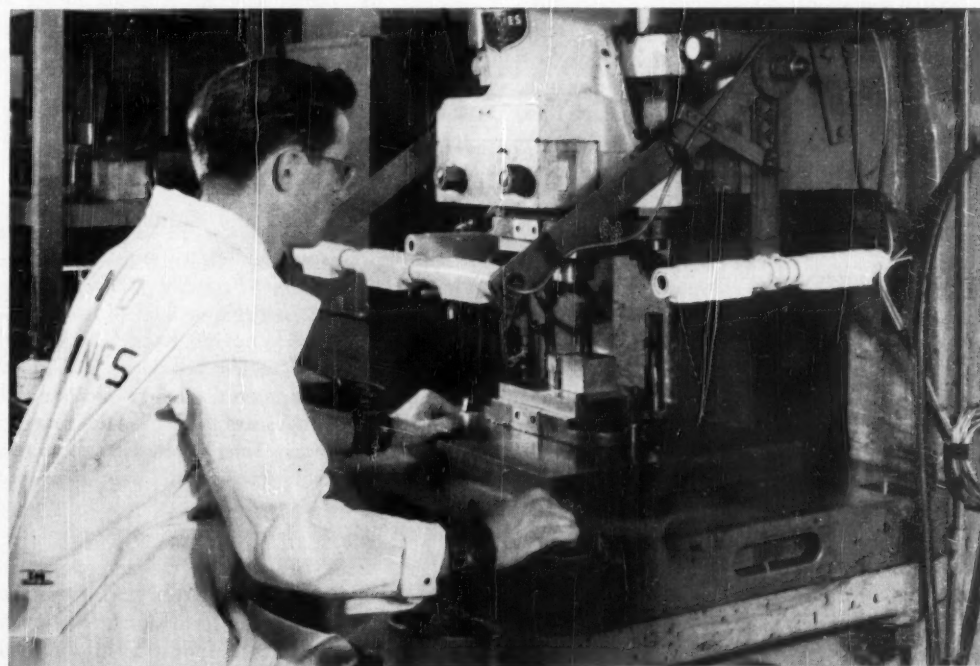
As Daniel Bergsma, New Jersey Commissioner of Health, told a recent American Public

By-products of atomic reactors open the door for new products of many kinds. For instance, radioactive isotopes permit design of new thickness and liquid-level gages for steel, paper, textile, and petroleum processing; laboratory in-

struments; and safety equipment, as the photographs below show. They should be thought-starters for many companies looking for new product opportunities. Another good source: AEC-owned patents available for licensing.



Tobacco density is controlled by radioisotope gage mounted on cigarette-making machine. Radiation monitor detects and responds to variations in thickness or tightness of packing, automatically adjusts tobacco rate of feed. Complete unit was designed and built by American Machine & Foundry.



Operator safety is bolstered by Hazatrol safety device. Radioactive material in wrist bands provides constant signal that locks press instantly if operator's hands are too near. White tubes jutting out from the press are the signal-detectors. They're connected to a control box and a fail-safe timer.

Where to get information on atoms and reactors

The literature on the atom is growing with mighty speed. But, from a relatively few sources, it is possible to obtain a number of excellent general publications and motion pictures, advice on specific problems, and lists of technical reports. These sources include:

GOVERNMENT REPORTS

Semiannual reports of the Atomic Energy Commission and summaries of its major activities; and such special and valuable publications as *Selling to the AEC*, the *Liquid-Metals Handbook*, industrial reports to the AEC on *Nuclear Power Reactor Technology*, and the original Smyth Report (*General account of development of methods of using atomic energy for military purposes*) may be obtained from the Government Printing Office, Washington 25, D. C., at nominal prices. A complete listing of government *Publications relating to atomic energy* is offered free of charge; and a general list, *Selected readings on Atomic Energy*, covering commercial as well as government publications, is 15 cents.

TECHNICAL PUBLICATIONS

Research reports of and to the AEC are regularly briefed in *Nuclear Science Abstracts* (semi-monthly, obtainable on subscription from Government Printing Office, \$6 a year) and may be read in AEC depository libraries (of which there are now 46, located in 26 states). Many of these reports may be purchased through the Office of Technical Services, Department of Commerce, Washington 25, D. C.

MOTION PICTURES

Obtainable on loan free of charge are such excellent films as the one North American Aviation, Downey, Calif., made to show the building of its homogeneous (solution-type) reactor; General Electric's new one, the *Sea Wolf*, on the atomic submarine; and several produced by the AEC. Commercial films have also been made, and can be rented or purchased. A list of these may be obtained from the Public Information Service, U. S. Atomic Energy Commission, 1901 Constitution Avenue, Washington 25, D. C.

INDUSTRIAL CONFERENCES

Excellent sources of information on atomic energy and its uses, plus a good deal of specific data to guide design of products for the atomic age may be obtained at conferences regularly

held by the National Industrial Conference Board, 247 Park Avenue, New York 17, N. Y., and the Atomic Industrial Forum, Inc., 260 Madison Avenue, New York 16, N. Y. Proceedings of past meetings are obtainable in published form at prices ranging from \$6 to \$15 each. Special technical conferences are also held by several professional societies; and papers on various aspects of atomic energy utilization have been delivered at regular meetings of such organizations as the American Management Association and the National Association of Manufacturers.

INDUSTRIAL ASSOCIATIONS

In addition to the Atomic Industrial Forum, mentioned above, which has one of the AEC depository libraries, the Electric Companies Public Information Program, 2 West 45th Street, New York 36, N. Y., is a good source of information. Its *Atomic Energy Kit*, containing a copy of the Atomic Energy Act, interpretations of its clauses, and information on nuclear reactors, may be had for \$8, with supplementary data furnished free of charge. And the newly formed American Nuclear Society should be a valuable future source.

BRITISH PUBLICATIONS AND MOTION PICTURES

The comprehensive and clearly written publication, *Britain's Atomic Factories*, and a ten-minute film, *Atoms at work*, may be had from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. The booklet is \$1.25; film rental, \$1.50. Reports on Canadian research and lists of radioisotopes available for sale, may be had from Atomic Energy of Canada, Ltd., Chalk River, Ontario.

OTHER SOURCES

For the would-be supplier, the companies already engaged in nuclear reactor work (see page 37) are a fine source of information and help. In addition, the AEC has an Industrial Information Branch in Washington, D. C., a Technical Information Service at Oak Ridge, Tenn., and industrial specialists at all of its field offices and national laboratories.

Health Association meeting, the new legislation gives state officers "wide latitude for interpretation and enforcement, and [is] a powerful instrument for radiological health control."

In entering a new field like this one, it's certainly wise to take advantage of whatever help is obtainable. For instance:

Visit the local AEC and Department of Commerce offices. (The latter, besides being the sales agent for many AEC technical publications, offers specialized help for small business.)

Get to know the companies already working in the atomic energy field—companies like those listed on page 37. They may be able to suggest product ideas as well as to provide technical assistance. As noted above, even Babcock & Wilcox—certainly not a small or inexperienced firm—began its work in the atomic energy field by offering its services to, and entering into co-operative studies with, companies already engaged in atomic energy research.

Take advantage of the services offered by associations like the Atomic Industrial Forum, Inc., 260 Madison Avenue, New York 16, N. Y., and by such consulting companies as those mentioned in the list on page 37. And don't overlook new organizations like Radiation Applications Incorporated, 342 Madison Avenue, New York 17, N. Y., which specialize in various phases of nuclear energy utilization.

Even with such help as this, most companies will have to do a good deal of trail blazing themselves to uncover the needs of the atomic age, and devise means of satisfying them.

Two areas that seem particularly promising for product development are mechanization and safety.

Mechanization of atomic energy processes is still a wide-open field. There is a tremendous need for all sorts of manipulating and handling devices that can be operated from a distance with real accuracy and reliability.

In radiochemical processing, for instance, many operations must be performed inside thick-walled concrete cells using "mechanical arms" to manipulate equipment and containers. But, in the early labs, these arms were not really mechanical. They were simply an extension of the operator's own arms, and depended on brute force for their operation. That made it extremely difficult to carry out manipulations—particularly at distances of more than twelve feet.

To overcome such limitations, engineers like R. C. Goertz and W. M. Thompson of Argonne National Laboratory have devised electronically controlled, force-reflecting manipulators that promise much greater ease, safety, and flexibility of operation. Now, they're working on a track-mounted, anti-swing hoist that can be made to travel a predetermined path and come to rest instantly when it reaches the desired spot.

These are only a few of the many opportunities that can be found by the company that takes the trouble to look. The atomic market is new, exciting, and largely unexplored. The time to start exploring it is now.

What makes a good PRESIDENT?

JAMES H. RAND..... *President, Remington Rand, Inc.*

WALTER H. WHEELER, JR. *President, Pitney-Bowes, Inc.*

ROBERT H. MORSE, JR. *President, Fairbanks, Morse & Company*



JAMES H. RAND created his company 35 years ago when he believed sufficiently in his "Kardex" system to compete with his father's business. Today, the company consists of 30 corporations with world-wide facilities. Inventor, industrialist, and business leader, Mr. Rand also takes a great interest in medical and scientific research.



WALTER H. WHEELER, JR., joined the company in 1919, served in various production, sales, and administrative positions until he attained the presidency in 1935. Associated with War Production Board during World War II, he is connected with many other councils and advisory boards having to do with business, health, and charity.



ROBERT H. MORSE, JR., is the third generation Morse to head his company. Joining it in 1916, he has worked in factory, field, and office, moving up the ladder to the chief executive's position. A director of many outside companies including the American Motorists Insurance Company, he is also a trustee of Beloit (Wisconsin) College.

The essential ingredients necessary to make a chief executive are many and varied. Intelligence, integrity, imagination—they are important. Confidence, reliability, understanding, patience, hard work, and many others must also be included. How do these parts add up to a whole? Last month three company presidents stated their views; here are three more.

The President, Remington Rand, said:

A study of success in business inevitably brings up the question: "Why does one man succeed beyond his fellows?"

There used to be a good deal of guesswork about the things that lead to business success. Today there is no longer any need of guessing. Achievement has been reduced to a science as exact as chemistry.

There are certain fundamental laws of business. Every good executive employs these laws, consciously or subconsciously. They are signposts that mark the path of personal progress.

First: Vision and creative imagination.

Facts are not the only things that govern progress. Thousands of men who watched the first experiments with the horseless carriage had all the facts—and the facts themselves were not particularly illuminating. The new contraption was slower than a horse-drawn vehicle. It cost more, and was more likely to break down. Facts alone did not carry much conviction. But Henry Ford and a few others saw a new era and a new industry. Henry Ford alone saw a universal market for a standardized and simplified car that could be sold at a low price. Standing in the same place and surrounded by the same facts, he saw farther than other men.

Upon analysis and study it will be found that most successful executives saw things that others did not see. They thought constructively and built with the facts at hand. And finally, they had the courage to carry their convictions into the field of practical application.

Second: The productive use of time.

The executive's most limited asset is time.

Money can be saved, or borrowed. But time is limited and the allotment cannot be increased.

There are usually so many things to be done that it is physically impossible for one executive to do all of them. Details and routine matters should be delegated to others. The successful executive must differentiate between things that are important and those that only seem important. He must also learn to do the most important thing first. The loss of time caused by mistakes has to be minimized not merely by correcting errors, but by eliminating the cause of errors so that they will not occur again.

Third: Sound selection and management of men.

The executive hires others to supplement his own work. By hiring others, progress is accelerated; and if the judgment in selection has been good, the executive not only is able to multiply his own efforts, but he may be able to offset certain of his weaknesses. Studying men and learning to gauge their characters and measure their capacities—in other words, the ability to pick good men—is a tremendous business asset.

Fourth: Start with adequate financing.

Thousands of businesses fail every year because their managers have not had sufficient capital to swing the venture. It may not sound reasonable, but it is often wise to borrow money when you do not need it just so you will have the money—or at least will have established a regular line of credit when you need it. Money is a powerful tool for speeding progress, and its intelligent use is invariably a mark of the good executive.

Fifth: Intelligent control through the pro-

Continued on page 74

HOW FOREMEN GET THAT WAY



First-line supervision (union stewards, too) differ from the average worker, but not in the way you might think, this survey shows. Not love of company or union, but independence, ambition get them ahead



ALFRED G. LARKE
Employer Relations Editor

IF YOU could go out in the plant to-day and talk to the workmen who—though neither you nor they yet know it—will be the new crop of foremen next year, what kind of men would you find? And what would next year's union stewards look like, to-day?

Through largely fortuitous circumstances, the Survey Research Center at the University of Michigan found itself able to give some very specific and interesting answers to just those questions about future foremen and future stewards in a Midwestern home appliance equipment manufacturing company of some 2,500 employees. Preliminary reports have been made before a few professional societies; the complete findings will be published some time later this year.

The Survey Research Center, as part of its long-range program of research in what makes for effectiveness in large industrial organizations, in 1951 administered lengthy questionnaires to all the employees of what it calls, for purposes of publication, the Blank Company.

When its program and study directors learned, in 1952, that 23 of the original 2,500 had been promoted to foremen and 35 had been elected union stewards, it saw a chance to obtain valuable information on the attitudes of "future" foremen and stewards, if the answers of these individuals in the 1951 survey could be dug out of the statistical anonymity of the 1951 reports.

Although answers to the original questionnaires had been unsigned and unidentified, it was possible, through specific answers to factual questions on age, birthplace, experience, father's occupation, family status, seniority, and the like, to match up 1951 questionnaires with 1952 foremen and stewards, and give group comparisons without disclosing individual identities.

With the consent of management and union the experiment was agreed to, and new foremen and stewards alike were given the same questions to answer, six months to a year after assuming their new ranks. To guard against misinterpreting changes in attitude which might

have been common to production workers as well as foremen and stewards, the attitude survey was also re-run with a control group of workers who had not advanced in rank.

The result was that the SRC, and the company and union, with which it shared its findings (still in anonymous form, so far as individuals were concerned), got answers to these interesting questions:

1. Did future foremen differ from the rank and file, when they were part of that rank and file and before they knew they would be promoted? (Answer: Yes; details below.) And, if so, how?

2. Did future union stewards differ from the rank and file while they were still production workers, unaware they would be elected to office next year? (Answer: Yes.) And, if so, how?

3. Did the company choose the most pro-company men for foremen? The union, the most pro-union men for stewards? (Answer: No. Future foremen, before promotion, were more anti-company, as well as anti-union, than the average. Future stewards, before election, were more anti-union, as well as anti-company, than the average. Both groups had a lot in common.)

4. What changes occurred in the men's attitudes as they advanced up the management and labor ladders, respectively? (Answer: Only after promotion did foremen become more pro-company, stewards more pro-union.)

But this was not all. The University researchers squeezed still more significant data out of the situation when, in 1954, a cutback in workforce compelled the company to return some of the new foremen to the ranks. Many of the union stewards, too, were back in the rank and file as a result of not having run for re-election or of having been defeated.

Twenty of the 1952 foremen (twelve of them still on that job, eight in the ranks) and 20 of the 1952 stewards (six still stewards and fourteen in the ranks) were quizzed again, once more

against control groups, to find out how the loss of their positions affected their outlook.

General findings:

1. Demoted foremen quickly returned to their pre-foreman attitudes, except in regard to a few factual matters. Ex-stewards generally maintained their stronger pro-union attitudes better than demoted foremen held on to their one-time pro-company leanings.

2. Both the company and the union—each with its diverse means of selection and rejection—did a surprisingly acute job of winnowing the wheat from the chaff, or at least what was wheat and chaff from their respective points of view. Foremen who *stayed* foremen, by management choice, were the ones who adapted themselves most readily to pro-management attitudes. Stewards who stayed stewards, by the processes of democratic election, were those most able to adopt strong pro-union attitudes.

The numbers involved by the time the 1954 survey was conducted were small and the results, therefore, less reliable statistically. But the fact that *trends* were so strongly in a single direction lends credence to conclusions that a statistician might hesitate to certify.

Such subtleties as the difference between the foremen and stewards retained and those let go, as well as the more substantial findings shown in the comparison of 1951-1952 surveys, are material for a full Winter's brooding by the kind of policy-making executives who worry constantly about the validity of the methods they pursue and the theories they act upon.

What's important about the series of surveys at the Blank Company?

To Seymour Lieberman, SRC study director, who, with Gerald Mahoney, ran the survey under supervision of SRC Program Director Robert L. Kahn, one of the major interests was the light thrown on a moot question among social scientists: Are people chosen because they fit a role, or do they fit the role because they are

Text continues on page 46.

FUTURE FOREMEN ARE DIFFERENT — stewards, too

To pick foremen for advancement from the production force, the Blank Company uses tests for intelligence, personal adjustment, and interests, as well as the well-tempered judgment of its staff men and executives.

To pick stewards to represent the union in the plant, union members use the even older method of nomination and election, with no tests except the candidates' appeal to their constituencies.

The surprising result is that both management and union appear to pick out very similar men—men who differ markedly from the average worker in a great many ways.

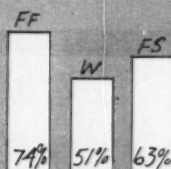
Proof that the difference is not due to their having become first-level leaders in management or labor is given by a University of Michigan Survey Research Center survey which recorded facts about their backgrounds, personalities, attitudes, *before* they became foremen or stewards or had any reason to think they might be chosen for such roles, except, possibly, their confidence in themselves.

Outstanding marks of difference between *either* future foremen or future stewards and the men who work with them are that, on the average, they were more stable personally, better educated, more certain of themselves, more ambitious to get ahead, more skeptical of both management and union, and—as *post-promotion* surveys showed—quite capable of adjusting themselves to the attitudes required of them in their new leadership roles.

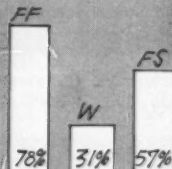
Besides the eight differences shown in charts at right, details are given on pages 48 and 50.

Even before becoming foremen or stewards, men who later got ahead at Blank's differed widely from men who were to stay in work-force. These charts show a few ways in which future foremen (FF) and future stewards (FS) differed from other workers (W).

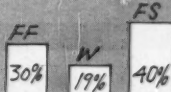
JOB SATISFACTION *"Would rather have another job than one I have now."*



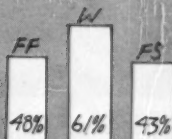
BE A FOREMAN? *Not only future foremen but future stewards, too, would like to be foremen:*



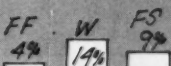
BE A STEWARD? *Future foremen, as well as future stewards, were willing to be stewards:*



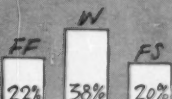
UNIONS *"Most unions are good:"*



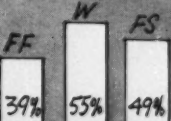
MANAGEMENT *"Management officers care a lot about the workers:"*



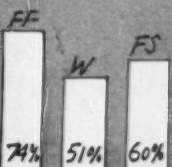
UNION OFFICERS *"Union officers care a lot about the workers:"*



INCENTIVES *"Mostly for them:"*



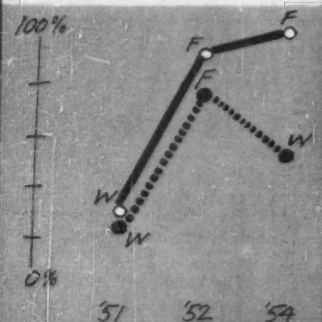
SENIORITY *"Ability should count more in promotion to foreman:"*



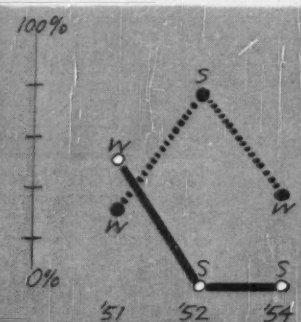
New Job, New Attitudes

Foremen Stewards

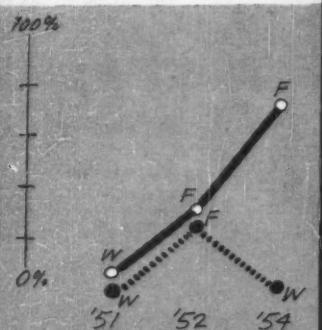
% who thought
"a good place to work:" Co.



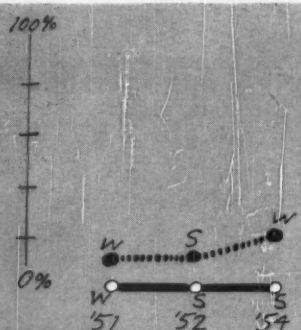
% who thought
"a good place to work:" Co.



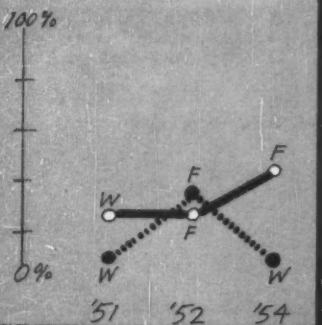
% who felt top management
"really cares about workers:"



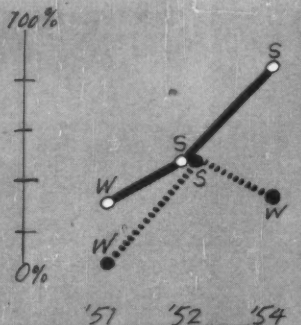
% who felt top management
"really cares about workers:"



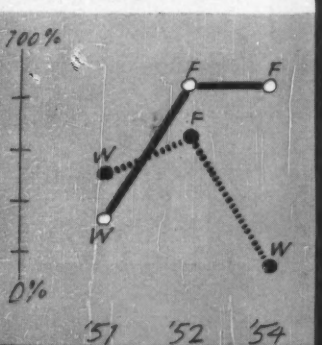
% who felt top union
officers "really care
about workers:"



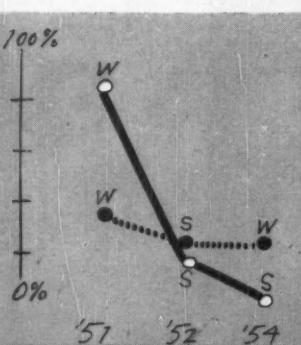
% who felt top union
officers "really care
about workers:"



% favoring pay on
incentive basis:



% favoring pay on
incentive basis:



When men who were workmen in 1951 became foremen or stewards in 1952, their attitudes on many matters changed sharply. Those who continued to hold these jobs (solid lines in charts to left) continued to hold the new attitudes when questioned in 1954. Those who had returned to production (broken lines) tended to resume former ways of seeing things—especially ex-foremen. Charts show changes in a few selected attitudes at the three points in time. Initials show men's status when questioned (W=Worker, F=Foreman, S=Steward).

chosen? The answer here seems to be: They fit themselves to the role for which they are chosen by adopting the attitudes expected of them.

But to management people, and probably to union brain trusts, too, there are more important considerations:

What bearing do these findings have on selection of foremen? If the union can by election choose the best men for stewards, need we spend so much as we do on systematic selection procedures to find foremen?

Are union stewards a good source of foremen?

How necessary is management indoctrination and orientation, if it's the fact of being a foreman that makes a foreman management-minded? Should management-development for supervisors be redesigned in the light of this survey?

Is there any way of making the pro-management attitudes of the foremen a permanent part of their outlook? (Witness the loss of these viewpoints when the foremen are demoted.)

How can reductions in force be handled so as to avoid creation of a number of dissatisfaction-centers among the supervisors temporarily downgraded? Can we keep these men as material for future promotion, or need they be written off for good upon demotion?

And, looking at some areas where both foremen and stewards appear to become more rounded citizens upon promotion—more interested in both the individual worker and the company—is there any way to make use of this trend to build co-operation and management-labor harmony, to the benefit of both factors?

In seeking answers to these questions and to others that will occur to him, the management or union leader will deal, first, with these large, general facts turned up by the study:

The future foreman or the future steward, while he is still in the undifferentiated rank and file, is likely to be:

More dubious (than the rank and file) of management's interest in the individual worker.

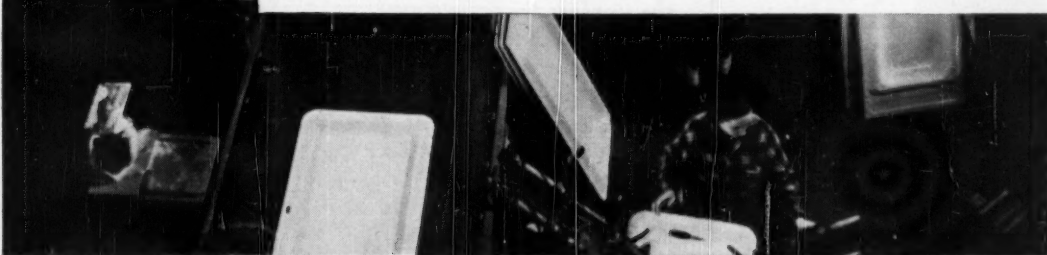
More dubious of union leaders' interest in individual workers.

A more stable person, in the sense of being married, having a family of three or more to support, being native born (in or near the town of

Continued on page 48



**See General American
for Plastics Molding**—Facilities unmatched
anywhere: injection presses to 300 ounces, compression presses to 2,000
tons, reinforced plastics molding, die making, painting, assembly, packaging



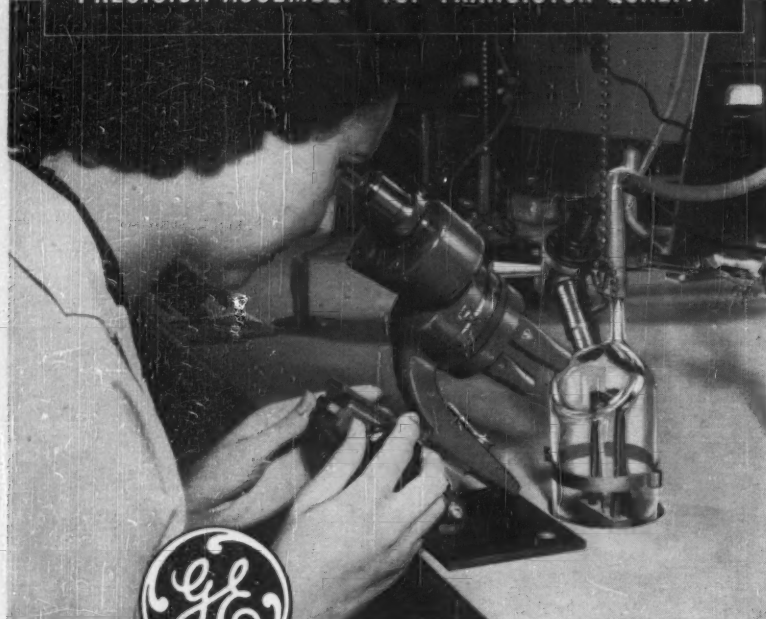
If you're now drawing,
forming, punching,
assembling, polishing and
painting *big parts* from
conventional materials,
there's no question but what
General American's
"one-shot" molding service
can help speed your
production—lowers costs,
too. Find out how plastics
correctly applied can improve
your products with greater
strength, lightness, variety
of design, molded-in color
and fine finish. Ask a
General American engineer
all about it!



**PLASTICS DIVISION
GENERAL AMERICAN
TRANSPORTATION
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HER 40-POWER MICROSCOPE ASSURES PRECISION ASSEMBLY—TOP TRANSISTOR QUALITY



Germanium Products

TRANSISTORS • DIODES • RECTIFIERS

THE EYES of this operator only see tiny transistor elements about to be assembled. We see much more. In order to supply transistors in greater quantities and at lower unit cost, General Electric is already geared to mass-produce them.

But, in addition to this widely publicized G-E "rate-grown" transistor, there are other germanium products of immediate concern to circuit design engineers. Stacked rectifiers were recently announced. These units are of the smallest size yet developed. They reduce comparable rectifier size and weight by as much as 75%. For your application it is important to note the G-E stacked rectifier can be assembled with 1 to 12 fins in any of 143 standard power combinations.

Diodes, too, share this spotlight on semi-conductor product advancement. Last year hermetically sealed units were perfected to master the damaging influences of moisture or gas contamination. Their stability and pulse recovery characteristics ideally answer requirements of magnetic and computer customers. Production now moves forward rapidly.

General Electric is at a point today where only development of new or improved equipment incorporating germanium products is a limiting factor. G-E germanium is ready to assist the engineer at work on business-office electronics, automation of manufacturing processes, miniature radios, irons, etc. So, whatever your current electronic design problem is, act now to obtain up-to-date information on all of the G-E germanium products.

General Electric Co., Germanium Products, Section X7815, Electronics Park, Syracuse, N. Y.

Progress Is Our Most Important Product

GENERAL ELECTRIC

12,000 in which the Blank Company is located).

Better educated, age under 40.

A skilled or semiskilled worker in the higher pay brackets.

Of medium seniority—more than one year, but less than six.

Less satisfied with his company as a place to work, less satisfied with his current job, more ready to hop to another.

Willing to take either a foreman's or a steward's job, whichever offers.

Less ready than the average man to see workers paid on incentive basis.

Less in favor of the seniority principle, in general, than the average man and more in favor of letting ability count.

All in all (foreman or steward), the more ambitious, less satisfied, more skeptical employee.

Some details follow of the 1951 answers to specific questions, by "future foreman" (FF), "future stewards" (FS), and the total workforce (TW). It should be kept in mind that the figures do not describe any single individuals; like the data of modern physics, they show probabilities. The figures show percentage of respondents who had the attribute listed or answered the question in the way indicated.

	FF per cent	TW per cent	FS per cent
--	----------------	----------------	----------------

PERSONAL BACKGROUND

High school education	61	33	43
Male	100	79	91
Under 40 years of age	91	57	89
Married	96	73	89
Have three or more dependents	65	34	51
Grew up in plant town	35	13	17

JOB STATUS

Base pay rate \$1.40 an hour or more	30	16	31
Highly skilled or semiskilled	91	69	89
Seniority between one and five years	69	33	66

DESIRE TO IMPROVE POSITION

Would rather have another job	74	51	63
Expect to stay at Blank only until they can find another job	35	10	20
Willing to take foreman job	78	31	57
Willing to take steward job	30	19	40

PERSONAL ABILITIES

High comprehension	87	63	86
Feel they have more ability than most people they work with	30	20	34
Feel they have good understanding of management-union contract	17	33	20
Have read contract themselves	39	22	31

ATTITUDES TOWARD COMPANY

How is Blank Co. as a place to work?

A good place to work	35	46	26
A fair place to work	56	32	48
A poor place to work	9	21	26

How does Blank Co. compare with other companies?

A better place than others	17	27	17
About the same as other places	53	52	40
Worse than other places	30	19	43

If things went bad for Blank, should the workers try to help out?

Yes—they owe it to the company	22	17	0
Yes—it's for their own best interest	69	67	74
No—shouldn't do anything	9	13	23

How much do management officers care about workers at Blank Co.?

Care a lot	4	14	9
Care a little, or "don't know"	70	66	57
Don't care at all	26	18	31

More **VICKERS**® Pumps

than all other makes combined are used for
HYDRAULIC POWER STEERING

People who look for
quality look for



As the sleek modern automobiles roll over the highway, more and more of them have hydraulic power steering. Power Steering has caught the interest of all motorists. Demand for it is rocketing.

More Vickers Pumps are used for hydraulic power steering than all other makes combined because Vickers pumps have the quality and characteristics needed.

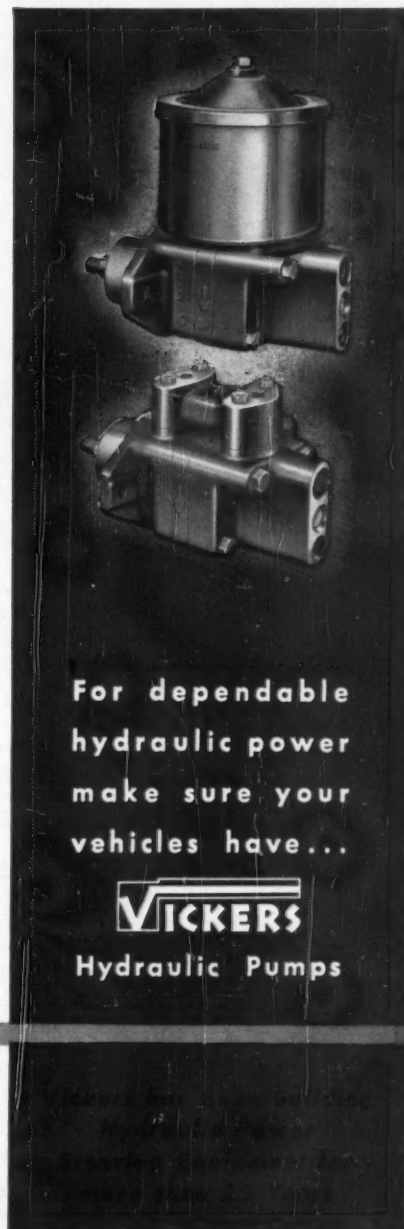
Vickers, with more than 25 years experience in building hydraulic pumps of all kinds (including those for power steering heavy vehicles) was ready with the right pump. Hydraulic balance eliminates pressure-induced bearing loads. Pressure compensation maintains optimum running clearances. The result is high operating efficiency, and exceptionally long life with a minimum of attention required. They deliver ample power over a very wide range of operating speeds.

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VICKERS Incorporated

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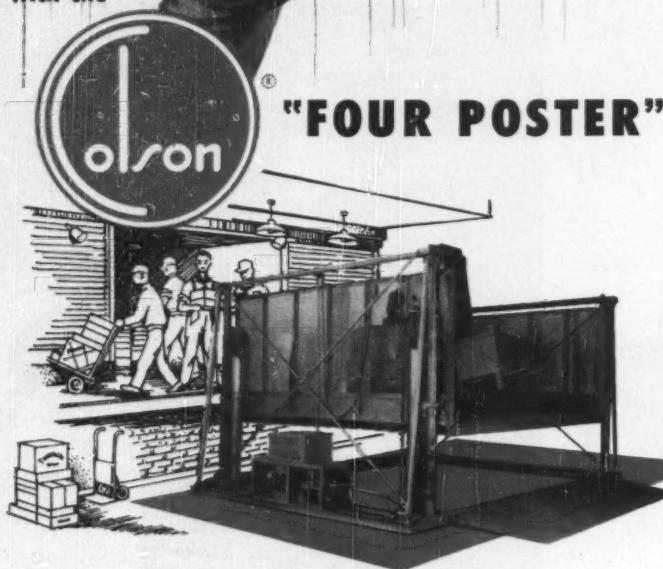
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hydraulic power
make sure your
vehicles have...

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with tire



The COLSON electraulic lifter is the most economical means of moving heavy loads between floor levels. Used as a dock hoist it speeds loading of trucks and freight cars. Easy to install — requires no pit or sub-surface installation of any kind.

13 special safety features, including a general overall safety factor of 4, make this device the safest of its kind available to industry.

Available with capacities to 12000 pounds, platform sizes 5 to 12 feet, and for lifts from 5 to 17 feet.

Do the people in your organization, who are concerned with materials-handling, know that The COLSON Corporation now provides the greatest variety of materials-handling products ever offered American Industry? — everything from casters to power trucks!

Write us or consult your local phone book (under "Casters" "Elevators: Portable" or "Trucks: Industrial") for the COLSON office near you.



ATTITUDES TOWARD UNIONS

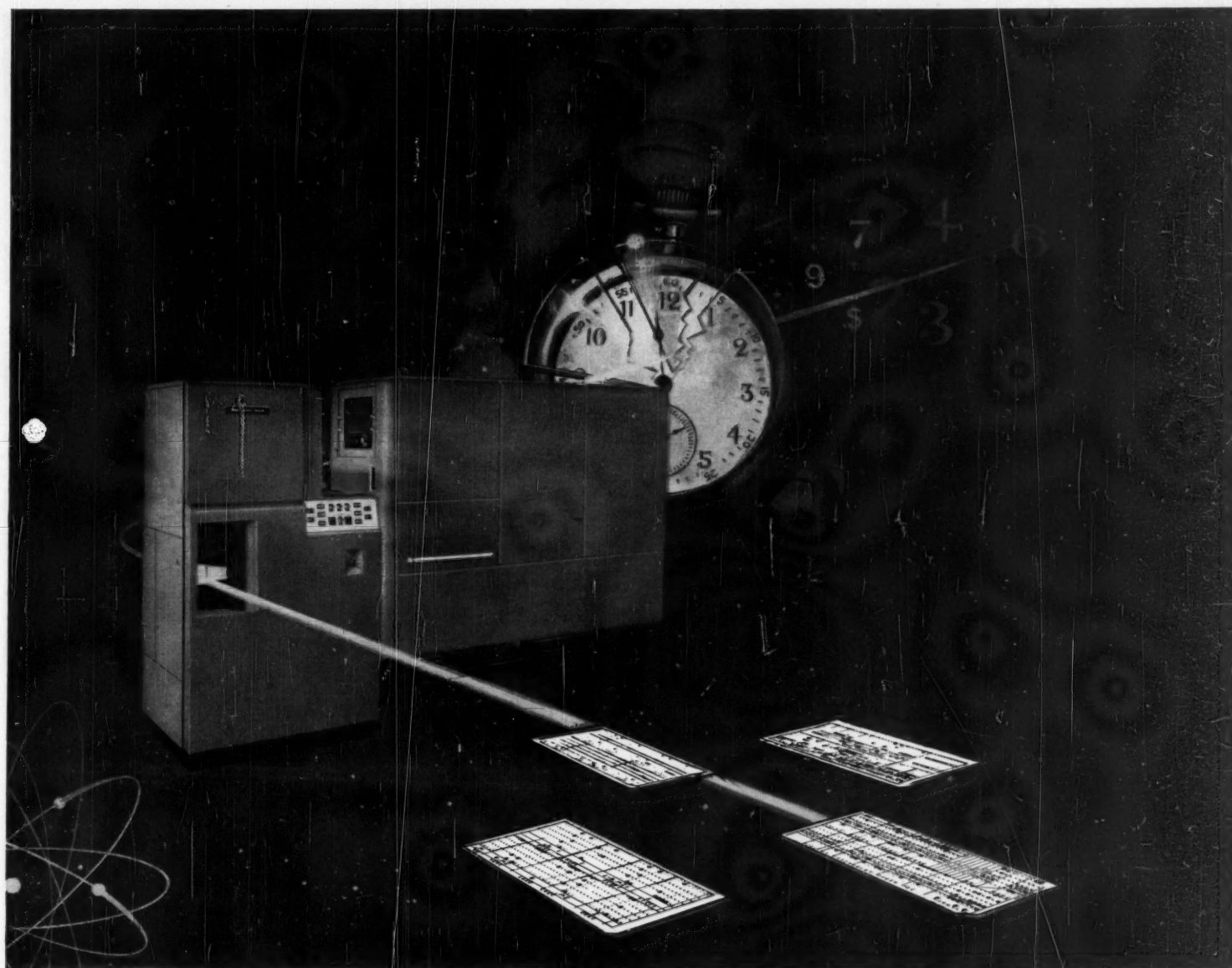
	FF per cent	TW per cent	FS per cent
<i>How do you feel about unions in general?</i>			
Most are good	48	61	43
Some are good	43	31	46
Most are bad	9	3	11
<i>How much say should the union have in setting labor standards?</i>			
More than now	78	76	88
Same as now	22	13	6
Less than now	0	2	0
<i>If there were no union at Blank, how do you think things would be?</i>			
Much worse without a union	48	63	68
A little worse	48	21	26
The same or better	4	10	6
<i>How much do union officers care about workers at Blank Co.?</i>			
Care a lot	22	38	20
Care a little, or "don't know"	74	54	74
Don't care at all	4	6	6

ATTITUDES TOWARD INCENTIVES

<i>How do you feel about the idea of paying a man on an incentive basis?</i>			
Mostly for it	39	55	49
Both for it and against it	44	33	34
Mostly against it	17	8	14
<i>How do you feel about how the incentive system works at Blank Co.?</i>			
Satisfied with it	17	30	23
Neither satisfied nor dissatisfied	26	22	17
Dissatisfied with it	57	42	57
<i>Do you think there should be changes in the incentive system at Blank Co.?</i>			
All right as it is now	9	23	11
Keep it but handle it differently	57	51	66
Cut it out and pay hourly rates	30	14	20
<i>Is a standard ever changed just because a man is a high producer?</i>			
No	39	33	26
Yes	61	55	65

ATTITUDES TOWARD SENIORITY

<i>How do you feel about the way the seniority system works out?</i>			
Seniority should count more	35	36	43
All right as it is now	56	55	46
Seniority should count less	9	6	11
<i>How much should seniority and ability count in lay-offs?</i>			
Seniority should count more	61	60	66
The same	35	26	31
Ability should count more	4	11	13
<i>How much should seniority and ability count in moving to better jobs?</i>			
Seniority more	13	26	14
The same	52	43	63
Ability more	35	28	23
<i>How much should seniority and ability count in promotion to foreman?</i>			
Seniority more	0	14	14
The same	26	32	26
Ability more	74	51	60



Breaking Through the Cost Barrier with **UNIVAC 120** Punched-card Electronics

A whole new world of vital facts about your business has been opened up . . . by punched-card electronic computing!

The raw figures have always been on hand . . . costs, sales, price changes, volume . . . and hundreds of other factors. But integrating and interpreting them would have meant too much mathematics, too much time and too much money for most concerns.

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Why don't you put it squarely up to us to show how Univac 120 punched-card computer methods can boost *your* profits? Room 1110, 315 Fourth Ave., New York 10.

Remington Rand ELECTRONIC SYSTEMS



This progress photo shows a portion of the 38-acre assembly plant. The completed structure will also include administrative offices, employees' facilities, a garage, and plant services. General contractor for the project was Fred J. Brotherton, Inc., of Hackensack, N. J.

Giant Ford Plant Erected in 78 Days

Here's one of the speediest jobs of steel erection you're likely to hear about. It's Ford Motor Company's tremendous new plant at Mahwah, N. J., biggest of all the Ford assembly plants.

Starting on February 11, 1954, Bethlehem crews began setting steel for the simple column-and-truss frame as it arrived by rail from the fabricating works in Pottstown, Pa. Close on the heels of the erection gangs came the bolting crews. Working far faster than would be possible with rivets, they set nearly 250,000 bolts, including about 150,000 high-strength bolts. Thanks to speedy bolting, and to a carefully planned and executed job schedule, the 9,600-ton steel framework was completely raised by May 19,

completely bolted by May 28—just 78 working days after the job began!

An interesting sidelight is the fact that, at about the same time that Bethlehem Steel Company was working on the Mahwah plant, erection crews of Bethlehem Pacific were constructing another large Ford assembly plant at Milpitas, Calif., near San Francisco. The use of high-strength bolts enabled the crews to erect the 7,650-ton steel skeleton at the rate of two acres a week.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL





CANADIAN VIEW OF DETROIT—WILLIAMS PHOTOGRAPH

- *New orders outpace production*
- *Better-than-seasonal gain in output*
- *Collections less troublesome*
- *Personal income at record level*
- *Factory employment increases*
- *But failures at five-month high*

Can the Boomlet Grow?

At the start of the new year, many business men felt like a husband on a second honeymoon. They wondered, without actually putting the disturbing question into worrisome words, how long the pleasant revival would last.

Those who look for an early end to the recovery insist that it depends overwhelmingly on the consumer acceptance of the 1955 cars. However, more significant is the continuing rise in the two factors—total inventories and defense orders—which contributed the most severe downward pressure during the 1953-1954 recession.

As during recent months, several key sectors of the economy—retail trade, factory jobs, producers' new orders, steel output—were surpassing seasonal expectations last month, according to early reports from 60 cities in 39 states. Industrial buyers have become much less reluctant to extend their commitments beyond the needs of the immediate future, since inventories appear less unwieldy in the light of recent rises in overall demand. While there have been scattered price rises, primarily in metals, most prices have not moved upward with the recovery in general business, possibly indicating that productive capacity is more than sufficient to satisfy rising demand.

Near-great Expectations

How does the new year shape up in the imaginations of the hosts of professional economists who have been offering their nuggets of wisdom at business meetings? Most economists expect business activity in 1955 to top that of 1954, but not match the all-time record set in the very boomy year 1953. Since the gap between 1954 and 1953 was about 2 per cent, the estimate seems to be an attempt at statistical sharp-

shooting in placing gross national product for 1955 between \$356 and \$365 billion.

If the present momentum carries total business activity this year beyond that of 1954, as seems most likely, enough impetus may be gained to surpass 1953 and set a new record. Of course, gross national product, which is the measure of all goods and services produced, obscures the changes in various industries which could be quite startling with the shifting markets now present.

The better-than-seasonal surge in total industrial production which began last Fall helped to temper the usual December decline. The seasonal

decline in soft goods was largely offset by gains in the making of automobiles, metals, and machinery, so that the slight dip in December was probably much smaller than in recent years and in vivid contrast with the sharp drop in December 1953 when the inventory recession was deepening.

Steel production, the object of many happy glances in recent months, closed the year with a total production of about 88 million tons, compared with the record of 112 million tons in 1953. Steel producers did not feel overly optimistic in anticipating a volume of about 105 million tons for 1955. They were off to a propitious start since orders for most types of steel extend through the first quarter and for cold-rolled sheets even into the second quarter.

The rebound in steel output which began in September carried output up about 35 per cent as many steel consumers apparently realized that inventories had been allowed to shrink too severely. After reaching the highest 1954 level in November, steel-making was sustained in December, contrary to the usual pattern of a year-end decline. During December mills continued to receive new orders at a much faster pace than shipments, thus augmenting already rising backlogs. While auto-makers accounted for a larger share of steel orders than in recent years, commitments came from an entire spectrum of industries. Production of steel is expected to outpace consumption in the months to come (a reversal of the pattern during most of 1954) as many steel consuming industries add to their inventories.

In High Gear

The automobile industry closed the year with a burst of speed in keeping with the hefty horsepower of the new models. During the final

Weekly Business Signposts

SELECTED BUSINESS INDICATORS	LATEST WEEK*	PREVIOUS WEEK	YEAR AGO
Steel Ingot Production.... Ten Thousand Tons	176	194	144
Bituminous Coal Mined.... Hundred Thousand Tons	88	85	86
Automobile Production.... Thousand Cars and Trucks	169	170	123
Electric Power Output.... Ten Million KW Hours	991	985	890
Freight Carloadings..... Thousand Cars	654	662	652
Department Store Sales.... Index Number (1947-1949=100)	223	192	216
Wholesale Prices..... Index Number (1947-1949=100)	109	109	110
Bank Clearings..... Hundred Million Dollars	893	887	874
Money in Circulation..... Hundred Million Dollars	308	307	310
Business Failures..... Number of Failures	208	223	210

*Steel and bank clearings data are for the fourth week of December; all others are for the third week except coal, freight, and sales which are for the second week.

Sources: Amer. Iron & Steel Inst.; Bureau of Mines; Automotive News; Edison Elec. Inst.; Assn. of Amer. Railroads; Bureau of Labor Statistics; DUN & BRADSTREET, INC.

Need \$25,000?... 5 million?...
for months?...years?...

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BALTIMORE 1—200 W. Baltimore St. CHICAGO 6—222 W. Adams St.
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SAN FRANCISCO 6—112 Pine St.

A Service Available Through Subsidiaries of

COMMERCIAL CREDIT COMPANY

Capital and Surplus Over \$170,000,000

The Trend of BUSINESS

two months of the year, output topped even the all-time high in the similar period of 1950.

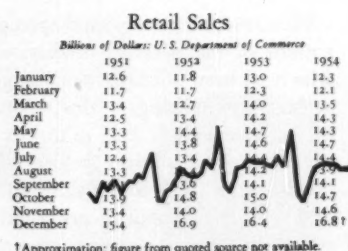
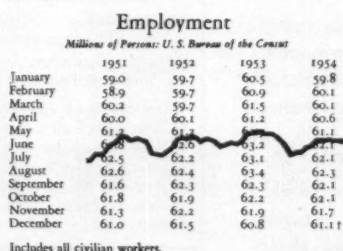
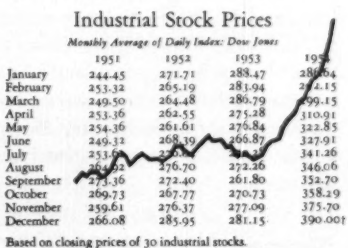
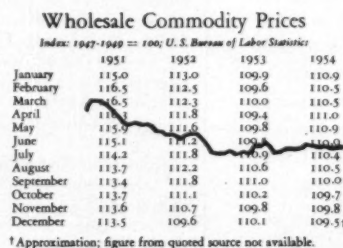
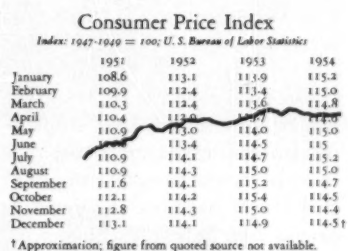
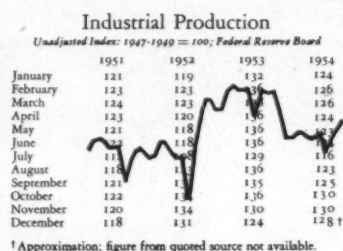
By the middle of December the millionth 1955 model had already rolled off the assembly lines. Automakers have been rushing 1955 models to dealers to take advantage of the robustly revived interest of consumers who have placed orders in advance of current output. Perhaps the impetus has also come from the announced intentions of the UAW to press strongly for the guaranteed annual wage when the current contract with General Motors expires in May.

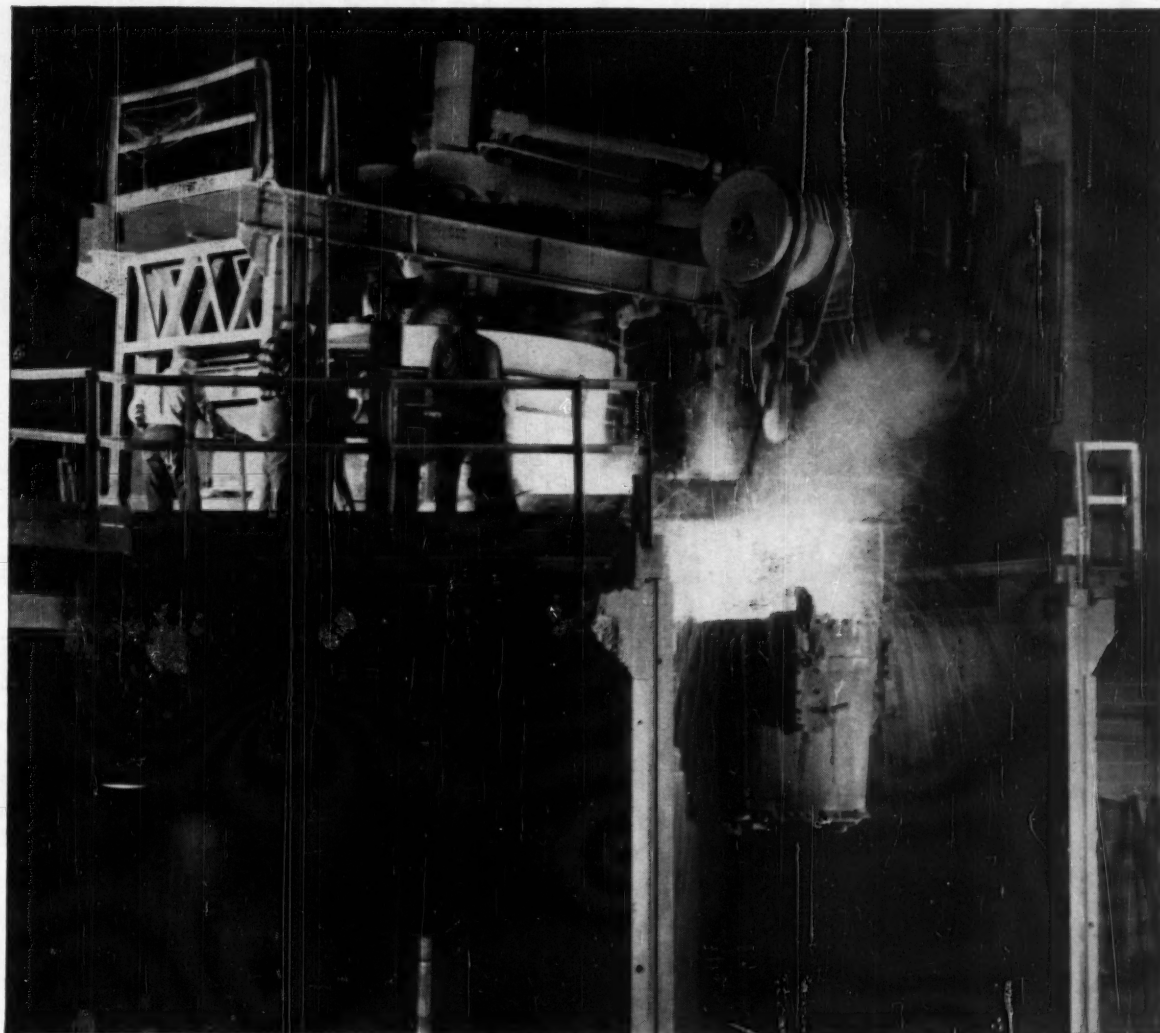
The possible early saturation of the market for 1955 cars has disturbed the sleep of those who believe that the substantial recovery in automobile production is one of the main props for general business at the present time. With the current rate of production, the saturation point, at which new cars become stuck with dealers, could come sooner than last year when about six months passed before dealers faced this situation. However, the changes in the new models,

which have been much more than face-lifting, have aroused consumer enthusiasm to a pitch not encountered since the heady days immediately following the Korean clash in June 1950. Probably more important, many consumers will finish their payments this Spring on cars bought when the Government relaxed credit curbs in May 1952.

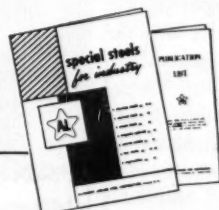
Automobile production rose slightly in December when output usually declines so that production for the entire year 1954 came to about 5.5 million cars. It was surpassed by the total of 6.7 million cars in 1950 and by the 6.1 million in 1953. Industry spokesmen are looking ahead to a total output of 5.8 million cars this year.

Although the most spectacular gains during the recovery which began last Fall have been scored by the auto-makers, it does not follow that the new boomlet depends primarily on how responsive the consumer is to the blandishments of auto dealers. Many other industries—construction, household goods, defense plants, machine-tool makers—have placed extended commit-





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New-type coating cuts tank lining expense

"Mr. Cost Cutter" reveals how users improve protection and save with sprayed-on plastisol coatings

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In one instance, the plating division of an automobile company used Unichrome Coating 5300 in a big way on rinse and electrocleaning tanks. Why? Because it was found that the outside as well as inside of tanks could be protected with heavy plastisol coatings for less money than it formerly cost to line just interiors with plastic sheets.

At another plant, tumbling barrels lined with Unichrome Plastisol Coating were compared with others lined with synthetic rubber. Subjected to the roughest kind of production for 9 months, the plastisol did more work because of its toughness and chemical resistance, proved more durable than equal thicknesses of rubber—and cost only half as much.



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Unichrome Rectifiers are unusual in design of rectifier stacks, transformer ratings, wiring and insulation details — to give long service with high efficiency in plating, anodizing. Result: lower cost per year.

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We'd welcome an opportunity to help you "Finish it better AND SAVE."

The Trend of BUSINESS

ments for steel and other materials.

Industry's spending plans for new plants and equipment in the first quarter of this year call for a slight dip, about 3 per cent, from the final quarter of 1954. For the past several months, actual expenditures have surpassed earlier intentions. Expenditures by railroads and other transportation groups, and by commercial and construction enterprises are scheduled to gain slightly.

Order Backlogs Boosted

Data on total business inventories are as slow-moving as the stocks themselves. The most recent Government estimates on this pivotal sector of business indicated that in the beginning of November total stocks amounted to \$77.9 billion, a decline of 6 per cent from a year before when the inventory slashing began. Spot surveys of manufacturers and merchants in 140 cities in 46 states indicated that stocks were probably up slightly in early December. This would be the third straight month in which total inventories were expanded in keeping with seasonal demands. The expansion of inventories, which is viewed as investment by most economists, provides a broader market for many industrial goods.

During November manufacturers' new orders were apparently in excess of sales (shipments) as in the previous two months. Manufacturers consider this bread-and-butter ratio much more significant than the cumbersome movements of gross national product (so dear to the hearts of economists) and draw from it confidence to extend their own orders, thus multiplying the effects of recovery.

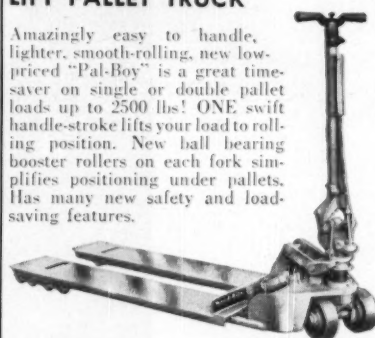
In early November the backlog of manufacturers' unfilled orders, a basic barometer of future performance, was at \$48.2 billion and most likely continued to rise last month. However, it was still down considerably from the all-time high of \$77.9 billion reached in September 1952.

As in the prior month, manufacturers added workers to their payrolls in December according to preliminary information from 39 states.

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Amazingly easy to handle, lighter, smooth-rolling, new low-priced "Pal-Boy" is a great time-saver on single or double pallet loads up to 2500 lbs! ONE swift handle-stroke lifts your load to rolling position. New ball bearing booster rollers on each fork simplifies positioning under pallets. Has many new safety and load-saving features.



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MATERIALS HANDLING ENGINEERS

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Saves Typing Time... Stops Eye Fatigue!

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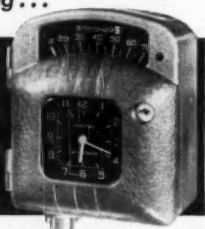
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- WHEN VEHICLE WAS IN MOTION
- WHEN VEHICLE STOPPED
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However, the lengthening of payrolls was not on a par with the gains in output since new machinery and perhaps workers' anxiety, itself, have boosted productivity.

In November factory jobs had edged upward to the highest level, 16.1 million, since last March. Although there were nearly one million fewer workers in manufacturing than there were in November 1953, producers were able to equal the output of the earlier period.

There were early indications of another slight rise in unemployment in December but the total most likely remained close to three million as during the previous three months. It was up about 700,000 from the year-ago level but a like amount below the post-Korea high.

Personal income from non-farm sources (about 90 per cent of total income) expanded slightly again in November as it did in recent months. For the entire year 1954 total personal income was about equal to the record level reached in 1953, thus bolstering spending.

How Shoppers Behaved

Preliminary information from DUN & BRADSTREET reporters in 60 cities in 39 states pointed to a near-record volume of \$16.8 billion in retail trade for last month. While this topped the total of December 1953 by 2 per cent, it did not quite match the all-time high attained in December 1952. More money was spent in food stores and at gasoline service stations than in any December on record.

During the entire year of 1954, retail trade was down only about 1 per cent from that of 1953. Changes varied from a drop of 6 per cent in the sales of automobiles to a rise of 8 per cent at gasoline service stations. While apparel sales during 1954 were off about 2 per cent from the prior year, food volume which is four times larger, was up 2 per cent.

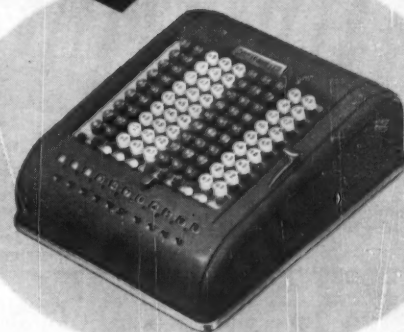
The very small dip in retail sales in 1954 was in clear contrast with the sharp shrinkage in payrolls and factory employment. The increase in unemployment insurance payments, Social Security benefits, wage rates, and the decrease in savings helped to sustain retail volume. Postponable purchases such as automobiles were deferred during 1954 as many consumers were apprehen-

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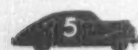
No capital investment to salesmen or company.



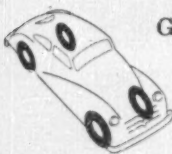
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The Trend of BUSINESS

sive about the job outlook. The demand for household goods was almost unchanged from the peak level of the prior year as new homes were built at the rate of 1.3 million a year, which was surpassed only by the total of 1.4 million in 1950. Builders would not be surprised if 1.5 million new homes were built in 1955.

Construction activity receded seasonally in November but continued to display reassuring strength. Both building permits and contracts for future construction pointed to new records yet to be achieved.

As they have for the past few months, business men reported that their collections in December were becoming less troublesome. While delinquencies and requests for delayed payments were more common than in December 1953, manufacturers and wholesalers were not disturbed by the tardiness of some of their customers. Retailers, however, were frequently nudged uncomfortably by the horns of a dilemma: they had to extend easy credit to entice customers although the number of delinquent accounts had risen about 20 per cent during 1954.

But Failures Mount

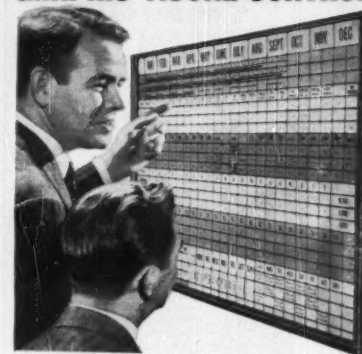
Business failures in November

FAILURES BY DIVISIONS OF INDUSTRY

(Current liabilities in millions of dollars)	Number		Liabilities	
	11 Months 1954	11 Months 1953	11 Months 1954	11 Months 1953
MINING, MANUFACTURING	2,078	1,664	153.8	135.1
Mining—Coal, Oil, Misc.	39	38	7.9	2.6
Food and Kindred Products	165	148	15.1	17.5
Textile Products, Apparel	504	420	25.8	27.8
Lumber, Lumber Products	300	255	14.5	12.7
Paper, Printing, Publishing	117	100	8.8	10.4
Chemicals, Allied Products	67	57	4.9	7.1
Leather, Leather Products	94	95	6.4	7.0
Stone, Clay, Glass Products	34	35	2.1	1.8
Iron, Steel, and Products	103	56	9.6	10.8
Machinery	273	143	36.2	21.2
Transportation Equipment	48	52	5.4	5.7
Miscellaneous	314	265	17.0	10.5
WHOLESALE TRADE	1,034	848	50.0	48.0
Food and Farm Products	271	241	12.8	15.6
Apparel	43	36	1.4	1.2
Dry Goods	56	39	2.3	2.2
Lumber, Bldg. Mats, Hdwr.	100	93	4.6	8.6
Chemicals and Drugs	43	31	1.1	1.3
Motor Vehicles, Equipment	52	35	1.8	1.1
Miscellaneous	469	373	26.1	18.0
RETAIL TRADE	5,078	3,999	137.0	107.5
Food and Liquor	926	812	13.4	14.4
General Merchandise	178	139	6.8	4.1
Apparel and Accessories	757	546	14.3	14.0
Furniture, Furnishings	850	642	42.1	24.5
Lumber, Bldg. Mats, Hdwr.	287	200	9.2	6.4
Automotive Group	546	479	19.6	16.1
Eating, Drinking Places	900	727	16.7	16.3
Drug Stores	145	107	4.4	3.9
Miscellaneous	471	347	10.6	7.9
CONSTRUCTION	1,175	935	50.9	39.2
General Bldg. Contractors	406	354	26.6	19.6
Building Subcontractors	721	530	21.4	14.5
Other Contractors	48	51	2.9	5.1
COMMERCIAL SERVICE	804	603	30.8	20.6
TOTAL UNITED STATES	10,169	8,049	422.5	350.4

Liabilities are rounded to the nearest million; they do not necessarily add to totals.

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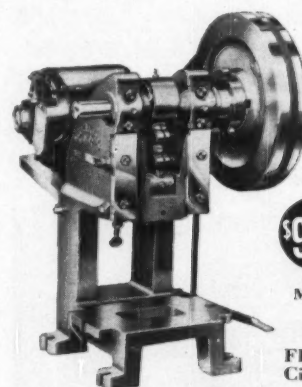
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rose 7 per cent to the highest level in five months, and were at the highest November level since 1940. They were about even with November totals in the 1934-1938 period. Concerns have succumbed at a higher rate only twice in the post-war era, in February and March 1954, but this mortality rate still remains considerably below that in 1939 and 1940.

All of the November increase was concentrated in retail trade where the toll mounted to the highest level since April. All retail lines rose in November with the most notable increase in apparel stores where casualties almost doubled to a seven-month high. In manufacturing, changes were slight in November in most industries. Failures among lumber and furniture manufacturers fell to the lowest level in almost a year and a half.

Six of the nine regions had increased failures in November. The Middle Atlantic States had the most since April 1954 and New England since December 1953. Only one marked decline took place, in the East North Central States, where the toll was the lowest since January 1954. In all regions, more businesses failed than in November 1953, with the sharpest rise in the South Atlantic States. Most of the month's rise was centered in the 25 large cities. Tolls mounted considerably in New York, Los Angeles, and St. Louis.

THE FAILURE RECORD

	Nov. 1954	Oct. 1954	Nov. 1953 P.C. Chg.†
DUN'S FAILURE INDEX*			
Unadjusted.....	46.4	39.9	41.7 +11
Adjusted, seasonally.....	46.4	42.4	41.7 +11
NUMBER OF FAILURES	933	871	815 +14
NUMBER BY SIZE OF DEBT			
Under \$5,000.....	143	150	112 +28
\$5,000-\$25,000.....	491	447	405 +21
\$25,000-\$100,000.....	236	220	228 +4
\$100,000 and over.....	63	54	70 -10

	Nov. 1954	Oct. 1954	Nov. 1953 P.C. Chg.†
NUMBER BY INDUSTRY GROUPS			
Manufacturing.....	179	189	175 +2
Wholesale Trade.....	86	91	88 -2
Retail Trade.....	490	414	389 +26
Construction.....	110	109	97 +13
Commercial Service.....	68	68	66 +3

(LIABILITIES in thousands)
CURRENT.....\$35,067 \$29,000 \$36,795 -5
TOTAL.....36,780 29,308 36,996 -1

*Apparent annual failures per 10,000 listed enterprises, formerly called DUN'S INSOLVENCY INDEX.
†Per cent change, Nov. 1954 from Nov. 1953.

BUSINESS FAILURES include those businesses that ceased operations following assignment or bankruptcy; ceased with loss to creditors after such actions as execution, foreclosure, or attachment; voluntarily withdrew leaving unpaid obligations; were involved in court actions such as receivership, reorganization, or arrangement; or voluntarily compromised with creditors out of court.

CURRENT LIABILITIES, as used in the Failure Record, have a special meaning; they include all accounts and notes payable and all obligations, whether in secured form or not, known to be held by banks, officers, affiliated companies, supplying companies, or the Government. They do not include long-term, publicly held obligations. Offsetting assets are not taken into account.



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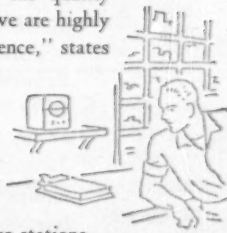
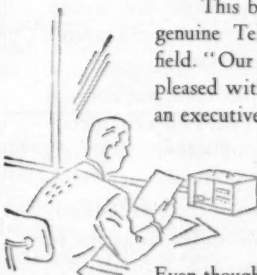
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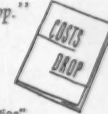


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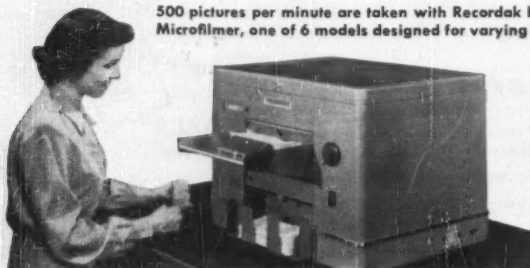
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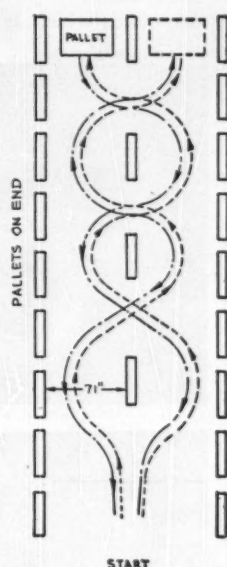
THE high cost of indirect labor is convincing many companies that this problem belongs at the top of their New Year's Resolution lists. They know it's high time to re-examine every phase of materials handling, maintenance, and other "indirect" operations to see how waste can be eliminated and performance improved.

Ideas a-plenty will be waiting at such trade shows as the Plant Maintenance and Engineering Conference and Exposition, to be held at Chicago's International Amphitheatre January 24 to 27; and the Sixth National Materials Handling Show and Conference, scheduled for the same location May 16 to 20.

But it's not necessary to wait for events like these to do something about indirect labor costs. For instance, better plant layout can reduce travel time in materials handling; obsolete equipment can be replaced with newer, easier-to-maintain units; and employees can be trained in safer, more efficient methods.

Almost every manufacturer of materials-handling equipment, and many of those who produce maintenance supplies, have useful booklets, bulletins, and checklists that can provide an excellent starting point. In addition, the Small Business Administration of the Department of Commerce, and such trade groups as the Conveyor Equipment Manufacturers Association, the Material Handling Institute, and the National Wooden Pallet Manufacturers Association, have a number of helpful manuals.

A good example of what can be done with relatively little effort to improve materials handling, is Ansul Chemical Company's training course for truck drivers, one phase of which is pictured here. The complete course takes six hours (one hour a week for six weeks) and covers five general areas: preventive maintenance, safety, service, individual responsibility, and truck operation. At the end of the course, each "student" takes a written exam and also demonstrates his ability to negotiate the obstacle course. Those who pass the tests (and Ansul proudly



Typical problem is outlined here. With obstacles set up as indicated, Ansul truck operator must pick up load, drive around pallets without knocking them over, then back up to starting point. Drivers who pass full series of driving tests, plus written exam, receive special license, truck keys.

notes that all did) receive a special driver's license and their own truck keys.

Result, says Ansul: Operators have a new awareness of the importance of materials handling and new pride in their jobs. They're driving more safely, and they're delivering materials faster and more efficiently. Complaints from production foremen on late deliveries and poor handling have been reduced 50 per cent.

How about trying the idea in your own plant?

How to trap a molecule

Molecular sieves, Linde Air Products Company calls its new synthetic zeolites. They're materials which can selectively adsorb chemical compounds, making it possible to recover ethylene, propylene, and other valuable components from waste gas streams, remove water from gases and liquids, and separate straight-chain

hydrocarbons from those having a cyclic or branched-chain structure.

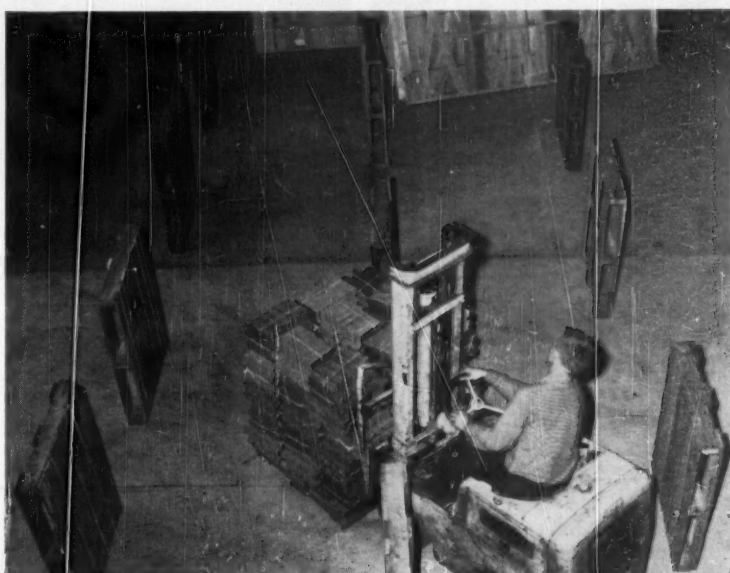
Two types of molecular sieves are now offered: The 4A type (sodium aluminum silicate) which will adsorb, and thus separate, molecules up to four Angstroms in diameter; and the 5A type (calcium aluminum silicate), which will capture molecules up to five Angstroms across. Both types are offered in granular and pellet form, and are priced at \$1.95 a pound.

According to Linde Research Director, John M. Gaines, molecular sieves will adsorb as much as 20 per cent by weight of such organic compounds as ethylene at room temperatures.

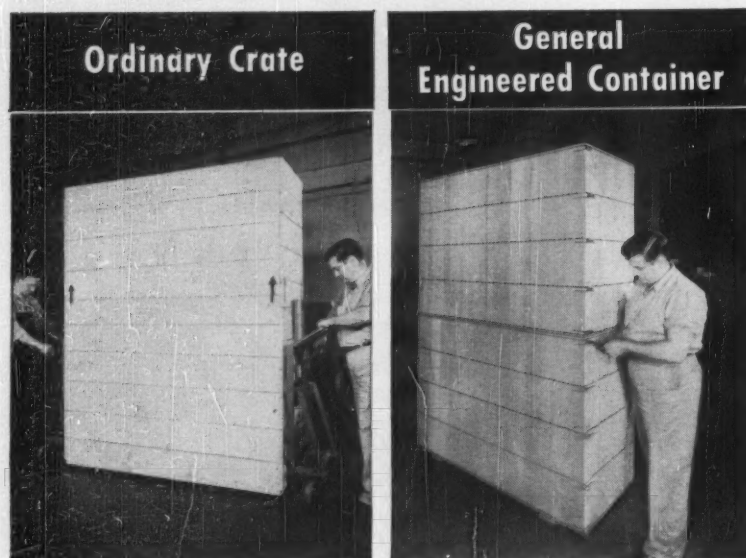
Because they can be reactivated by either heat or chemical treatments, and because they're unusually stable, Gaines believes the new materials should also prove useful for ion exchange and catalysis. So far, however, these possibilities have not been fully explored. Technical



Obstacle course at Ansul Chemical is used to test truck operators' driving skill. It's part of over-all plan to reduce accidents, improve efficiency.



Question: is there a difference between these two shipping containers?



Answer: There is ... and it was worth \$8,000 a year to The Foxboro Company!

...and the difference is General Container Engineering. Both containers hold a 925-lb. instrument cabinet. Both *protect* its precision instruments and satin finish during handling and shipment. Yet the one on the left weighs 400 lb. empty, takes two men and six man-hours to pack. While the General Engineered Container on the right weighs only 170 lb., can be packed by one man in just an hour and a half—*costs 42% less* than

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data on molecular sieves, and samples of the materials, may be obtained from Linde Air Products Company, division of Union Carbide & Carbon Corporation, 30 East 42nd Street, New York 17, N. Y.

New germ-killer for plant cleaning

Iodine is tamed for industrial cleaning and sanitation in a remarkable new group of compounds introduced by West Disinfecting Company, Long Island City 1, N. Y. Iodine's broad germ-killing power has long been recognized. But its toxicity, sting, and staining qualities prevented its wide use.

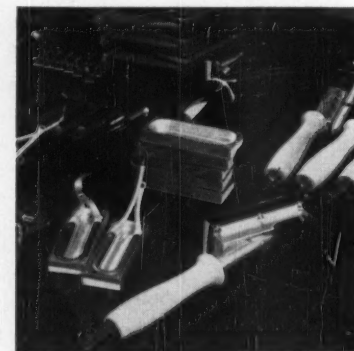
Now, West has combined iodine with synthetic detergents to produce compounds which, company presi-

dent James E. Marcuse says, are non-toxic, non-staining, and non-stinging, and still do a fine cleaning and sanitizing job. Furthermore, the iodine color is put to good use, since the compounds are a light amber when properly diluted for application, and fade to water-clear as the available iodine is used up.

Two formulations are now on the market. One, *Wescodyne*, is for general institutional use; the other, *Iosan*, specifically for dairies.

Materials in brief

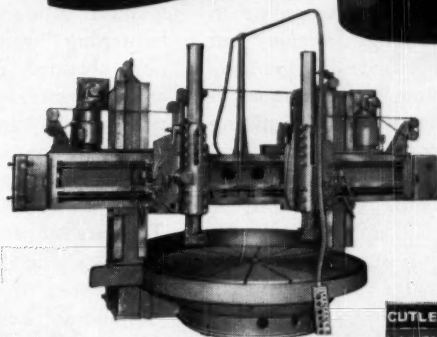
Buy it by the roll—reinforced glass plastic laminate that can be cut and formed to shape; needs only curing to produce durable machine housings, printed circuit



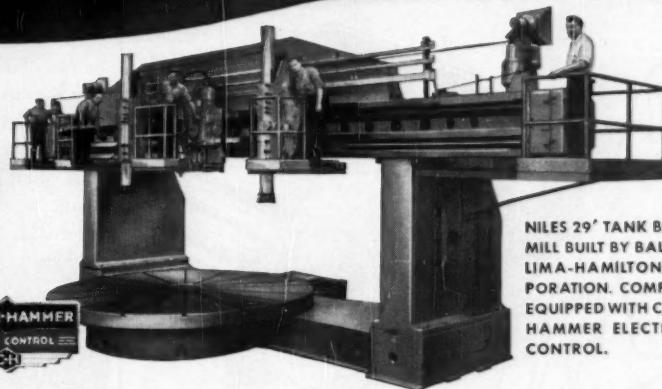
Built-in heaters boost production

Want to make better hose? hamburgers? heat-sealers? Try built-in heaters, suggests the National Electrical Manufacturers Association—and it backs up that suggestion with examples like these: Formed heating elements, cast into temperature-control jackets for rubber-extrusion machines (top photograph) have, according to NEMA, virtually eliminated hot spots and

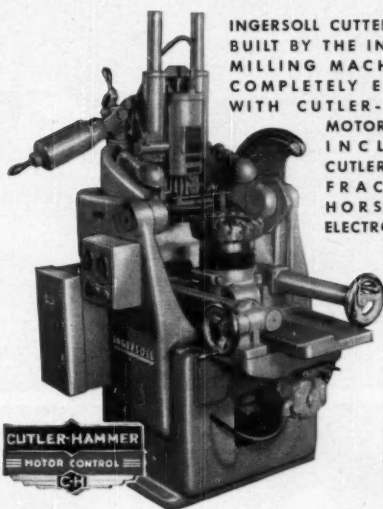
burning. In a new package-sealer (second photograph), a similar heating element is used to supply even, controlled heat; and a cartridge-type heater (lower photograph) improves a modern-day substitute for the branding iron. Actually, it's a marking unit for meat products in which the heater warms the stamp rolls so ink dries quickly, won't run even when applied to wet surfaces.



NILES 120" TANK BORING MILL BUILT BY BALDWIN-LIMA-HAMILTON CORPORATION. COMPLETELY EQUIPPED WITH CUTLER-HAMMER ELECTRONIC CONTROL.

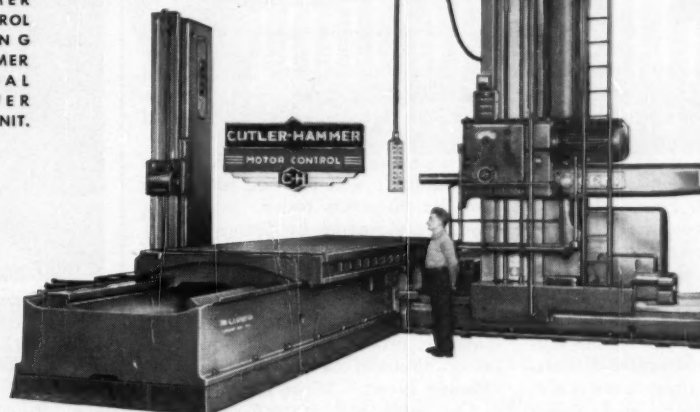


NILES 29" TANK BORING MILL BUILT BY BALDWIN-LIMA-HAMILTON CORPORATION. COMPLETELY EQUIPPED WITH CUTLER-HAMMER ELECTRONIC CONTROL.



INGERSOLL CUTTER GRINDER BUILT BY THE INGERSOLL MILLING MACHINE CO. COMPLETELY EQUIPPED WITH CUTLER-HAMMER MOTOR CONTROL INCLUDING CUTLER-HAMMER FRACTIONAL HORSEPOWER ELECTRONIC UNIT.

GRAY 6" PLANER TYPE HORIZONTAL BORING, MILLING & DRILLING MACHINE BUILT BY G. A. GRAY CO. COMPLETELY EQUIPPED WITH CUTLER-HAMMER ELECTRONIC CONTROL.

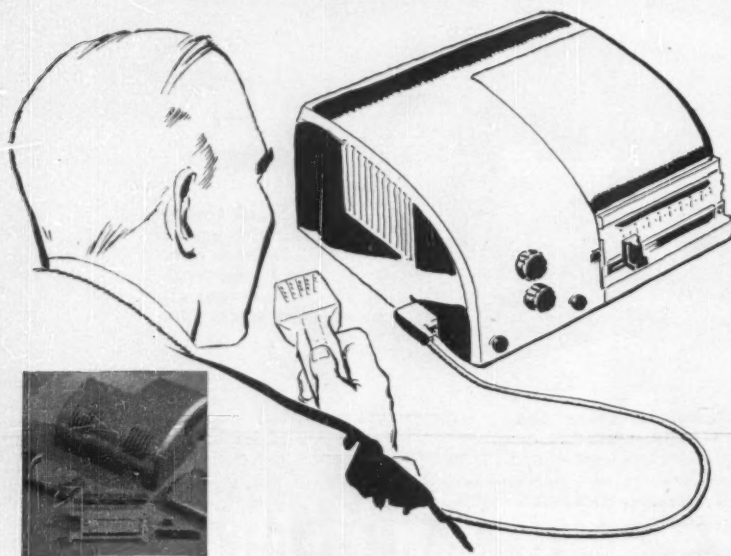


Better all the way

In every field of manufacture there are a few companies consistently able to better fit their products to the needs of the user. These companies just as consistently win and hold preferred position in their markets. But *better* product means better all the way through, better in the part the company *builds*, better in the components the company *buys* to complete its product. And leading machinery manufacturers that build spectacular new but dependable machines capitalizing on advances

in electronic control engineering refuse to compromise. They turn to electronic control by Cutler-Hammer, leader in motor control design for more than half a century, and now leader *as expected* in pioneering and developing electronic control. Cutler-Hammer is your safe choice for proved dependable and efficient electronic control. CUTLER-HAMMER, Inc., 1436 St. Paul Avenue, Milwaukee 1, Wisconsin. Associate: Canadian Cutler-Hammer, Ltd., Toronto, Ontario.

Another up-to-date product gets...
TALKING POINTS
and SAVINGS
with DUREZ PHENOLICS



Courtesy Peirce Dictation Systems Corp.

These materials offer you a fruitful approach to savings on the production line as well as buyer benefits for your products. Either result is profitable... both are doubly so.

For example, a major part of finishing cost on this new Peirce Magnetic Belt Dictation unit was saved by using Durez for the five-piece molded case and dial panel. The desired color and quality of finish is applied by a low-cost process that would have been impossible on metal parts. Being self-insulating, the material prevents shorts in units. In two belt drum parts it also contributes to constant signal output needed for distortion-free recording.

Ease in maintaining rigid dimensional tolerances and ability to mold-in slots, holes, and threaded inserts also helped to hold cost down.

Whether or not you are already using plastics, it will pay you to inquire into the phenolics today. Interesting new developments by Durez are extending the industrial importance of these highly versatile materials.

Call on our 34 years of specialized experience for help in solving your materials problems. You'll find interesting reports in our illustrated monthly "Plastics News." Write Durez Plastics & Chemicals, Inc., 1901 Walck Road, North Tonawanda, New York.



PHENOLIC PLASTICS
for the new
Competitive Era



MOLDING COMPOUNDS. Structural, electrical, and chemical properties in many combinations.



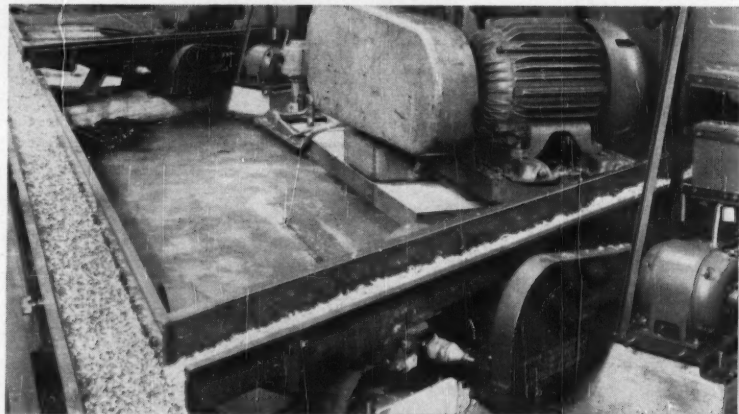
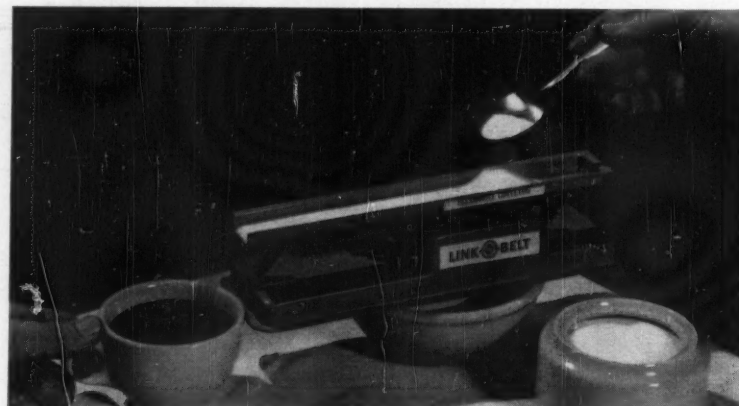
RESINS FOR INDUSTRY. Bonding, casting, coating, laminating, impregnating, and shell molding.

bases, shipping containers, and the like. Minnesota Mining & Manufacturing Company is making this new epoxy-base material, *Scotchply*, in two types: "Unidirectional" (line of greatest strength in one direction) and "Isotropic" (equal strength in three directions). *Scotchply* is sold in sheets up to 48 inches wide, as well as in rolls. It's priced at \$2 a pound, and can be supplied in colors, and with other surface decorations. According to Minnesota Mining, *Scotchply* can be molded in matched die, pressure-bag, or vacuum-bag techniques, is ready to mold as-shipped, requiring no additive or other treatment. Normal shelf life of the material is about a month, but this can be extended to four months or more if the material is stored under controlled conditions (40° fahrenheit).

Can atomic radiation be put to work in petroleum processing? Standard Oil Development Com-

pany is building a quarter-million-dollar radiation laboratory to find out. In the new lab, penetrating gamma radiation from a cobalt source specially prepared by Brookhaven National Laboratory will be applied to organic compounds of the types encountered in petroleum processing and petrochemical production. If promising reactions are uncovered, SOD researchers hope eventually to develop practical, economical production methods by harnessing "waste" gamma radiation obtained directly from an atomic reactor, or from reactor by-products. It's another step—and an important one—on the road to the "atomic age" (see page 36).

The metal comparator developed at General Motors Research Laboratories to check metal analyses and sort scrambled stock (see October 1954, page 35) has now been licensed to Brush Electronics Company, 3405 Perkins Avenue,



Modelling sales

Demonstrating heavy-duty industrial equipment isn't always easy—and carrying it along on sales trips is well-nigh impossible. But Link-Belt Company solves both problems with the little model pictured here. As L-B points out, its bulk-materials conveyors handle anything from corn to chips as

easily as the model dispenses a spoonful of sugar. (In the lower photograph the full-size Flexmount oscillating conveyor is being used to remove aluminum chips from a battery of automatic screw machines.) Could a scale model and a little imagination help your product show what it can do?



TRANSPORTATION

UNLIMITED

A healthy, robust business atmosphere means more than production and profits . . . it also means happy, progressive citizens — earning more, spending more, enjoying life more. And business is booming in Georgia, the strategic transportation hub of the entire Southeast. By air, rail, motor freight and modern seaports—raw materials and manufactured goods move swiftly and easily to markets over the world. Adequate transportation is essential to business health . . . business health is essential to happy citizens. Georgia has both—in abundance.

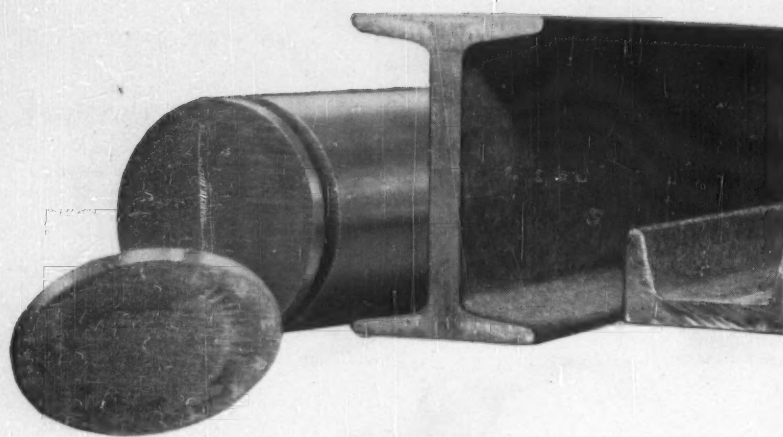


GEORGIA DEPARTMENT OF COMMERCE

Nelson M. Shipp, Secretary

100 State Capitol, Dept. D-1

Atlanta, Georgia



What do steel inventories REALLY COST?



You might be shocked to find how fast the hidden costs of carrying steel inventories add up! We know because steel inventories have been our stock in trade for over a hundred years.

But you don't *have* to tie up plant space and capital in steel you won't use for many weeks—may never use if products or markets change quickly. You don't *have* to lay out cash for cutting and handling equipment, incur unnecessary scrap loss, or divert manpower to unproductive inventory work.

Instead, you can hold your own inventories to a practical minimum and draw on Ryerson inventories as current requirements arise. At Ryerson you have the world's largest stocks at your disposal—plus unequalled facilities for preparing steel to your order—so you can get delivery of any kind of steel in practically any quantity, within a few hours.

That's why we urge you to consider *all* your costs when setting inventory policy. And let Ryerson help you release more of the money in steel inventories for profit-producing opportunities. Our inventory experience is at your service.

Principal products in stock: bars, structurals, plates, sheets, tubing, alloy and stainless steel, reinforcing, babbitt, Ryertex industrial plastic, machinery & tools

RYERSON STEEL

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • CHARLOTTE, N. C. PHILADELPHIA • CINCINNATI • CLEVELAND • DETROIT • PITTSBURGH • BUFFALO • SEATTLE CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE

Cleveland 14, Ohio. GM called the instrument a "Thermo-Electric Metal Comparator." Brush has named it simply the *Metal Indicator*.

For reading and reference

Here are interesting new books and pamphlets to help you catch up with the latest developments in methods and materials. Requests for publications should be directed to sources indicated.

Plastics: Two new publications, both sponsored by the Society of the Plastics Industry, contain much useful information on how and where to use plastics. On the technical side is the new *SPI Plastics Engineering Handbook*, containing more than 800 pages of information on design, materials, fabrication, and application. Published by Reinhold, 330 West 42nd Street, New York 36, N. Y., it's priced at \$15. Far less technical, but equally valuable, is a new *Retailers' Plastics Manual*, which reviews the major commercial plastics, and contains a useful glossary and directory of trade names. Priced at 50 cents, it's obtainable directly from the SPI, 67 West 44th Street, New York 36, N. Y.

Rare metals: Beryllium, bismuth, germanium, silicon, and more than a score of other rare but increasingly important metals are described by the men who know them best in this useful handbook edited by C. A. Hampel. Chemical and physical properties, applications, and fabricating data are given for each one. Published by Reinhold, the *Rare Metals Handbook* is priced at \$12 a copy.

Natural resources: Report of the Mid-Century Conference on Resources for the Future, held in Washington last year, details problems of land, water, and mineral development, points up opportunities for research aimed at satisfying future needs. A 400-page, paper-bound volume, *The Nation Looks at its Resources* is priced at \$5, may be obtained from Resources for the Future, Inc., 1145 Nineteenth Street, N. W., Washington 6, D. C.

Flammable liquids: A handy directory that includes flash points,

applications, and manufacturers of some 2,400 compounds that should be handled with care is published by National Fire Protection Association, 60 Batterymarch Street, Boston 10, Mass. As its title indicates, compounds are indexed by trade name. *Flammable liquid trade name index*, NFPA publication 324-A, 82 pages. Price: \$1.25.

Aluminum: This useful, hard-cover volume not only covers types, fabrication, and applications of rod, bar, and wire, but also contains a good deal of information on the metal itself, an excellent glossary, and numerous tables of conversion factors, chemical resistance, and the like. *Rod, bar and wire product information*, 160 pages. Price is \$2, but the volume is sent without charge to executives who write on company letterhead stationery. Address *Technical Editor*, Kaiser Aluminum & Chemical Sales, Inc., 22 North LaSalle Street, Chicago 1, Ill.

Electrical relays: For the second year, Potter & Brumfield are making the complete proceedings of the annual *Relay Symposium*, held at Oklahoma A & M, available to industry free of charge. Papers delivered at the 1954 session cover relay materials, design, and applications. Requests for copies may be directed to Potter & Brumfield, Princeton, Ind., or to local P&B representatives.

Basic materials: Proceedings of second annual Basic Materials Conference, now in book form, cover new developments in such processing techniques as powder metallurgy, forging, extrusion, and adhesive bonding; take a look at future materials problems in breaking the thermal barrier, meeting the needs of the atomic age. *Materials for Product Development* is sent without charge to all those who attended the conference. Others may purchase it from Clapp & Poliak, Inc., 341 Madison Avenue, New York 17, N. Y., for \$7.50. It's cloth bound, 160 pages. This year's conference and exposition, broadened to include components and finishes of interest to the design engineer, are scheduled for May 31 through June 3, at Philadelphia's Convention Hall. Visitor and exhibitor information may be obtained from Clapp & Poliak.

Don't take it out on the salesmen!



Item #23-B out of Plant 2 is backing up in the field.

Anxious phone call. Hurried plane trip. "Get out there and *sell*, you so-and-so's!"

He might better have stayed at the main office. That's where the fault lay—in Central Accounting. Sales figures from Plant 2 (and all other plants) are processed there. It often takes weeks and weeks. Meantime, Plant 2 merrily continues full production of an item that's laying an egg with the customers.

What's needed? Up-to-the-minute fig-

ures on both production and sales — compiled right at the branch level. How to get them? With Keysort punched cards.

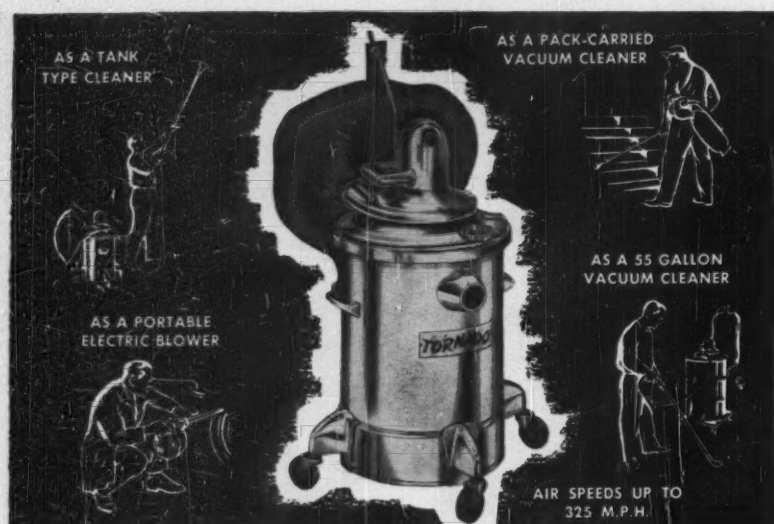
A McBee Keysort installation can provide comprehensive, accurate reports on every phase of branch operation. Fast, too — in your hands no later than the 4th of the following month. Whether you run a 100-man plant or a colossus employing thousands-plus. And the cost is remarkably low.

The trained McBee man near you can show you how it's done. Or write us.

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The NEW TORNADO®

More Versatile Cleaning From Floor to Ceiling

This new Tornado cleaner brings you even greater cleaning power and longer life . . . with air speeds up to 325 M.P.H. 3 sizes: $\frac{3}{4}$ H.P., 1 H.P. or $1\frac{1}{2}$ H.P.

Tornado picks up all dirt, dust, chips, oil or other liquids without any conversion.

The powerful motor unit removes from the cover with a simple $\frac{1}{4}$ turn. The same motor unit can then be used for:

- ① A pack-carried vacuum cleaner
- ② A powerful portable electric blower
- ③ A jumbo cleaner for use with a standard 55 gal. drum

No matter what your cleaning job—Tornado will do it better and faster—run for hours & hours of constant duty under the worst conditions.

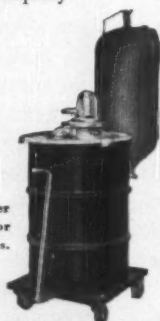
Write for Bulletin 660

We'll be glad to demonstrate in your company—just tell us where and when.



$\frac{1}{4}$ turn removes motor unit.
All sizes interchangeable.

Motor unit & adaptor cover
fit any standard drum for
doing the big cleaning jobs.



BREUER ELECTRIC MFG. CO.

5106 North Ravenswood Avenue

Chicago 40, Illinois



STABILIZATION

Continued from page 32

This problem is largely related to the farm implement plants and some collateral plants. In the farm implement plants, since farm machines are still used seasonally, production of most machines is also seasonal. The same floor space, the same employees, and many of the same tools may be used at different times of the year to produce different products. Some implements are made in large quantities and others get only short runs.

For example, at our McCormick Works in Chicago we make side rakes and mowers. While they are used only in Summer, the quantities involved are large enough so that we can produce them on a year-round basis. In the same plant, however, we also make ensilage cutters. The output is rather small and they are used only in Summer and early Fall. We schedule production of them from December through March. We then build ensilage blowers, on which the best selling season is the Fall and Winter. We start producing these in August and continue through December or January.

By this kind of balancing, we have been able to make progress in regularizing employment in the implement plants, where the problem is the greatest. It is our belief that this sort of product balancing or diversification within a single plant is a real help in job stability. But if you should ask me whether it is a complete answer, I would have to tell you that it is not.

One reason is that the machines must be manufactured considerably in advance of their season of sale if they are to be distributed all around the country in time for use. We don't know what the weather will be, what the crop yield will be. So it is quite possible for us to find ourselves with a quantity of machines that considerably exceeds the eventual sales requirement.

When that happens, we carry over inventory and that inventory depresses the manufacturing schedules and the employment for the following year. That, incidentally, is one of the problems Harvester has had in 1954, and it affected our employment adversely.

But that brings me to the third principle which has frequently been put forward as a help toward stabi-



It may be a special anniversary year for your company . . . a particular event or dinner, sales meeting or convention. Whatever the occasion, I&R Jewelry products with your trademark or design reproduced on them make the ideal gift.

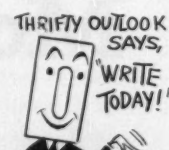
Why not write us now and let us suggest a 1955 award for you.

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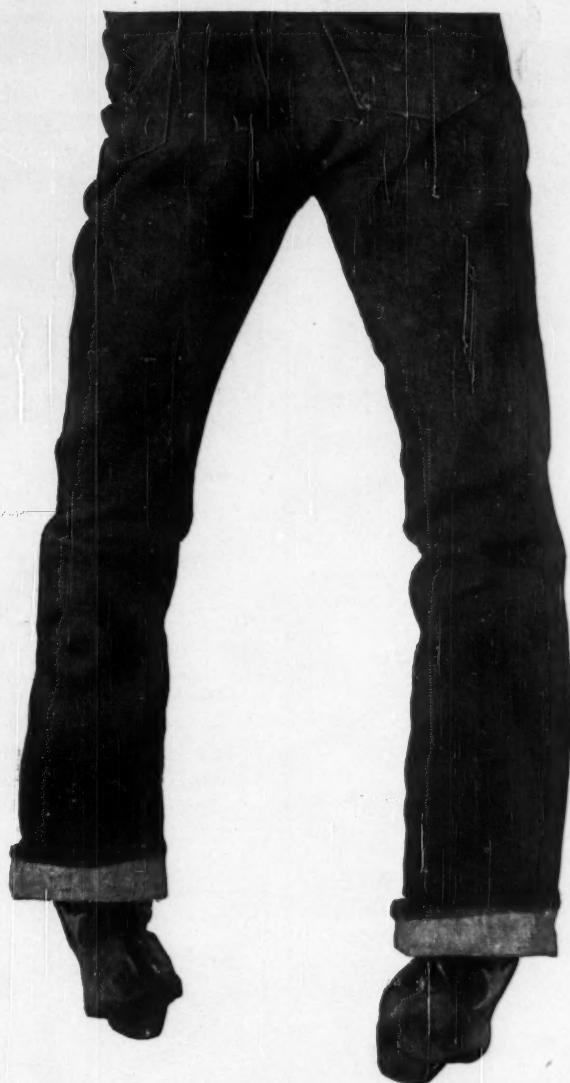


Positively opaque, they keep salary figures confidential—away from prying eyes. Only name shows through Outlook feature. No addressing, saves more than envelope cost. No chance of paychecks getting to wrong people.



Send one of your checks or facsimile. We'll submit a "Paycheck Outlook Envelope" to fit your checks and quote prices. No obligation!

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1005 WASHINGTON BLVD., CHICAGO 7, ILL.



Money for your jeans

Bank loans play an important part in clothing America. Here's how:

. . .

Before 1830 you couldn't have bought a pair of ready-made work britches for love or money.

But came the sewing machine, and a handful of enterprising Americans hitched up their homespun and went to work to make the ready-to-wear business a major industry.

Today U. S. manufacturers produce better than \$11,000,000,000 worth of apparel annually.

Here's the kind of help they get from America's bankers.

At the outset bank loans help apparel manufacturers buy vast quantities of finished cloth from textile mills. Bank loans pitch in to help meet cutting, manufacturing and distributing costs. They also contribute to the improvement of production techniques and new equipment for plants.

And . . . they do more, too.

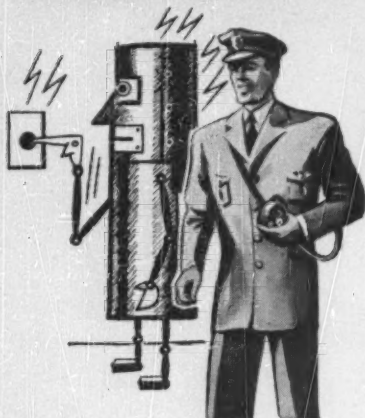
On the consumer level, bank loans frequently help retailers set up shop with enough sizes, styles and patterns to meet the requirements of everybody in the community.

Loans like these put money to work and thus naturally put men and women to work. This leads to a plentiful supply of goods and a wider distribution of wealth. Multiplied by many industries it becomes one of the most progressive forces in America for providing a wider choice of fine products for all to enjoy.

The Chase National Bank, first in loans to American industry, is proud of banking's contribution to the progress of our country.

The CHASE National Bank
OF THE CITY OF NEW YORK
(Member Federal Deposit Insurance Corporation)

IT sounds the alarm
but
HE prevents trouble



What won't they think of next!—but one thing is certain . . . no mechanical device, no matter how ingenious, can replace a watchman. Sure, a device can sound the alarm, but a watchman can prevent trouble before it starts.

Your trained watchman, who is supervised by a DETEX GUARDSMAN watch-clock system, averts disaster scores of times that you don't even know about. He removes dangerous waste material, smells smoke, traces escaping fumes, opens a sprinkler valve some one shut by mistake—or by malicious mischief.

Day and night, weekends and holidays, your GUARDSMAN-supervised watchman is exercising human judgment in your behalf. The GUARDSMAN saves you money in supervisors' overtime, cuts your insurance premiums. If your watchclock is more than five years old, it is urgent that you modernize with a GUARDSMAN.

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☐ Please send me complete information about the GUARDSMAN tape-recording watchclock.

☐ You may send a DETEX representative to make a free, no-obligation survey of our plant protection needs.

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Company.....

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Title.....

lizing employment. This is the principle of careful forward planning, of extensive market analysis, and careful inventory control as a means of stabilizing employment.

We have put great emphasis on this phase of our efforts. We make economic forecasts ranging two years ahead and adjusted at reasonable intervals. We have an Estimate and Order Review department which constantly reviews all factors affecting the future market. We have calculated "normal" yearly schedules for our thousands of products, based on ten-year figures. We receive all sorts of crop and other reports. But we can still be wrong; we can still be taken by surprise.

Outside Effects

The principal reason for this is the mercurial nature of the buying habits of our farmer customer. When farmers decide not to buy they don't taper off. They stop, right then. That happened to all the farm equipment companies in 1953. So again, the principle of forward planning is a help, but not necessarily a solution.

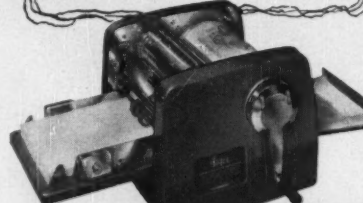
Still another recommendation that has frequently been made is that business should expand into new markets, especially into overseas markets, with the idea that this will help bring job stability.

I believe we have as much experience in this area as most American corporations, since our overseas business dates back to 1851, when Cyrus McCormick exhibited his reaper at the Crystal Palace in London. In 1954 we sold abroad more than \$125 million worth of goods made in our American plants. There is no question about the help that those sales gave to employment in our factories here.

On the other hand, if we are to stay in business in foreign markets, we must do an increasing share of the manufacturing for foreign countries in those countries. Last year, goods made in America and shipped abroad constituted slightly less than half the goods sold by our foreign subsidiary companies. The rest were manufactured abroad.

It has always been necessary for us to do some manufacturing overseas because some machines used in some foreign countries have no market in the United States and are not made here at all. But the biggest reason for expansion of over-

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seas plants and production is the political and financial barriers that surround world trade—blocked currencies, import restrictions, tariffs, and the rest. If we did not manufacture abroad, we would lose much of the sale of American-made goods which we now have.

So the principle of expansion into foreign markets is another of those ideas which helps but does not cure. Incidentally, it really helped us in 1954, for sales were up in many foreign countries while domestic sales were somewhat down.

Other Possibilities

There is another theory sometimes advanced for the stabilization of employment. That is the idea of deferring maintenance and construction work and doing as much as possible of it when times are dull.

Our experience is that a little can be achieved in this way but not very much. There are two reasons for this. One is that maintenance and construction work seldom employ the same kinds of people or the same individuals as production work. Union restrictions and other problems enter in. The biggest reasons, however, are that necessary maintenance can be deferred only so long without threatening a possible breakdown of operations, and that new construction is not usually undertaken when times are bad. Maybe it should be, but the record will prove that it isn't. Business men are subject to fits of pessimism as much as other people, and they rarely expand their facilities in the face of a declining market.

Finally, there is the theory that one way to avoid sharp curtailments of employment is to avoid sharp increases in employment—a sort of ever-normal jobs idea. Under this theory, in times of expansion and high production, instead of increasing our own facilities and our own employment we should subcontract more work and thereby avoid radical changes in our own employment. The idea is that when things drop back, we drop subcontracts.

We have had quite a bit of experience with that idea. In normal times the Harvester Company buys goods or services of various kinds from some 35,000 suppliers, big and small. No business like ours can possibly begin to provide for itself the thousands of kinds of special-



ARE

YOU CONSIDERING AUTOMATION?

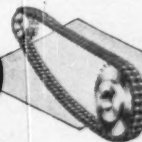
DIAMOND ROLLER CHAINS

HAVE A PLACE IN THE PICTURE!

Diamond Roller Chains are widely used in partial and complete automation setups:—providing smooth, highly efficient and positive power transfer; conveying, lifting and lowering operations; precise timing and coordination of few or many functions.

The high uniform quality and long-life dependability insure the kind of performances automatic machine and automation projects require. . . . To help you save time, our engineering staff is ready to make practical suggestions.

DIAMOND



ROLLER
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For Stock Roller Chain
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write for Catalog 4A.

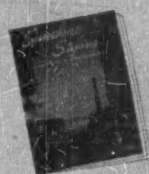
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directory under the heading CHAINS or CHAINS-ROLLER

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See the extra working room you get, using the same amount of floor space. Enjoy the inspiring beauty of furniture Sunshine Styled in nature's most pleasing colors. Reap the dollars and "sense" benefits of a happier, more enthusiastic, more alert office force. Forget future office furniture costs, for with Steelcase, your first cost is your only cost. Sunshine Styled for beauty . . . space engineered for efficiency . . . Steelcase has been first choice of the very fine companies of America for over forty years.



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STEELCASE INC

GRAND RAPIDS, MICHIGAN

WHENEVER YOU WANT TO MAKE A GOOD OFFICE . . . A LITTLE BETTER

ized products and services needed for continued progress.

This again is an idea that has some good in it, but is far from being an answer. For one reason, no company can be ruthless in chopping off its suppliers when the market turns down—not if it wants to have good suppliers when the market turns up again and components are hard to get. For another reason, it is often true that the company itself can produce the needed items more efficiently and at lower cost than any supplier. For a third, it doesn't seem to solve the public problem to preserve a steady workforce on the payroll of Company A but have wildly fluctuating employment in the plants of its suppliers, Companies B, C, and D, depending on whether Company A is buying or not.

Continued Efforts

Now, those are some of the ideas that we have tried and are still trying in my business. Obviously, some would work much better and some might have no application in businesses of other types. We are interested in the problem; we try to work at it steadily; but we do not have, and have not had, the kind of success we would like or our employees would like.

Since June of 1953 our total employment has probably been reduced by about 20 per cent. Much of that represented lay-offs. Some of it represented normal quits who were not replaced.

Maybe that is just because the management of our company is dumb. I won't argue that question. Maybe the similar experience of the rest of the farm equipment industry indicates that the whole industry is dumb. I don't believe that. We may be a little thick but I don't believe we are 20 per cent dumber than the rest of industrial management.

So the problem of job stabilization in our type of seasonal, durable goods industry now looks something like this to me:

1. Because we have not had 100 per cent success is no reason to quit trying. It is better than it used to be.

2. I am sure that we can still make progress, either by doing the present things in a better way or by doing some new things that we haven't thought of yet.

3. I don't believe we or any other industry in a free market society

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MATERIALS with the **HANSEN** **TACKER**

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SAVES TIME
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SAVES . . .

TIME—Fast, automatic, trip-hammer action. Drives staples fast as you grip. Take-up Jaw makes on-the-job servicing easier, quicker.

STEPS—Self-contained, ready for instant, continual use. Saves back-tracking. Light weight, easily portable. Vest-Kit for quick refills.

MATERIALS—Balanced design. Accurate, precision driving. Improved use of materials. Less waste. Powerful action drives each staple securely.

HANSEN VEST-KIT STAPLES

HANSEN VEST-KIT staples are quick to get at—easy to use. Narrow, slender box fits readily in vest pocket. Packed in convenient strips for instant use.

As near as the Vest Pocket

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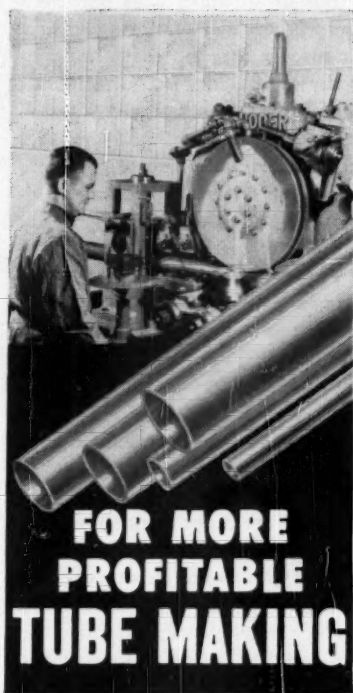
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FOR MORE PROFITABLE TUBE MAKING

• Nearly two decades ago Yoder introduced a line of tube mills equipped with their revolutionary new rotating welding transformer. To the high quality and low cost production of these mills, is due much of the credit for the big and rapidly expanding demand for E-W (electric welded) tubing.

Now as then, what the motor is to the automobile, the welder is to the tube mill. Through persistent research, tests and experiments, Yoder welders have been further improved and epoch-making new types developed:

1. For Steel Pipe and Tubing from $\frac{1}{2}$ " to 24" dia. Yoder "Four-in-One" resistance welder, most compact, trouble-free and efficient yet designed for tube production.
2. For Steel Pipe and Tubing up to 4-in. dia. new Yoder-Tocco Induction Welder. Speeds as high as 250 f.p.m.
3. For Aluminum, Brass, Nickel and other non-ferrous metals and alloys, new High-Frequency R. F. Welders. These Yoder mills are especially economical for light and medium heavy gauges.

Further information about tube making by any of these methods, literature, consultations and estimates are yours for the asking.

THE YODER COMPANY
5531 Walworth Ave., Cleveland 2, Ohio



will ever have 100 per cent stability of employment.

I believe there are three things which have the greatest effect in preventing stability of employment.

One of them—and the smallest—is strikes by labor unions. In these days of interrelated industries the strike is a weapon which sets off a chain reaction and injures people whom the strikers never see and have no desire to harm.

I am not arguing against the right to strike. But I am trying to point out that under modern conditions a strike is like firing a shotgun into a crowded mass of people because you are mad at Joe, who happens to be standing in the first row. When anyone considers the general problem of stability of employment, the strike cannot be ignored.

The second factor that works against stability of employment—in the sense that stability means making no changes—is technological development and progress. I am sure I do not need to argue that point or to explain it. And I am sure everyone in this country will agree that if a certain instability is the price of progress, we have to pay that price. We don't have perfect stability today. We didn't have it 100 years ago, either. But the progress we have made in that 100 years has brought us more of practically anything else you care to name and, I believe, more stability as well.

The third and the largest factor that makes perfect stability impossible is the market itself. So long as the market is free; so long as any man can spend his money on the goods of his choice; or elect to keep his money in his pocket, we will have instability.

And one of the things which the Communist and Fascist societies of the last 30 years certainly should have taught all of us is that when the market ceases to be free, everything and everyone else soon ceases to be free also.

I haven't got an answer to the problem of stabilized employment. I don't believe anyone else either has or will have such an answer. We cannot achieve complete stability. But we can and we will work towards stability as a goal. For, as I said at the beginning, this is one problem where we all see eye to eye, one situation where everybody's goal is the same.

THE END



The unpleasant stain and smear that once was the trademark of hectograph spirit duplicating is rapidly becoming a thing of the past—thanks to Columbia research and development. New, Black Marathon Ready-Master Units are clean—clean because Columbia's exclusive ink does not "blossom" on contact with the skin—clean because protective Supercoating covers carbon surface and all edges. Yes, the results you can obtain from Marathon Black Ready-Master Units will prove how much Columbia engineering has advanced the quality of hectograph duplicating.

If you've been using ordinary purple masters and have been tempted to scrap your spirit duplicating equipment in favor of some tricky new process—don't do it until you have tried Marathon Black Units. You'll get cleanliness and quality you would never dare hope for from ordinary masters. Use the coupon below attached to your business letterhead to obtain your copy of the Free booklet, "Quality Duplicating With Hectograph."

Columbia

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CARBONS
DUPLICATING SUPPLIES

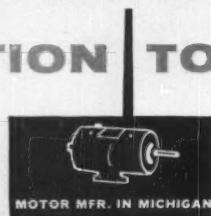


COLUMBIA RIBBON AND CARBON MFG. CO., INC.
851 Herb Hill Road, Glen Cove, N. Y.

Send booklet, "Quality Duplicating With Hectograph".

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Company _____
Address _____
City _____ Zone _____ State _____

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This year, these companies and others will use in excess of one-half billion dollars of Heller cash to solve such financial and operating problems as . . .

- meeting competitors' trade terms—*
- buying sufficient cash to buy and stockpile raw materials at best market prices—*
- building inventory to insure smooth and continual operation for peak selling periods—*
- purchasing new equipment or modernizing—*
- carrying heavy accounts receivable*

CASH and special plans geared to individual business operations come from

Heller under their diversified financing services. Heller plans do not interfere with management or profits. What you make is yours—yet you can use as little as \$25,000 or as much as \$3,000,000 for months or years. The cost is economical for you pay only for the money you use as your need varies.

To learn the facts, write for a free copy of our brochure, "Operating Dollars for Every Business."

At the same time you are invited to write in strict confidence about financial problems in your own business to which our services might apply.



Walter E. Heller & Company

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10 E. 40th STREET, NEW YORK, NEW YORK

WHAT MAKES A GOOD PRESIDENT?

Continued from page 43

per use of all available records.

The successful business man quickly learns that to guess is to gamble. He realizes that success is built on facts, and the more facts he has, the greater the chance to build soundly. Obviously the executive cannot keep records of everything or he will find himself in the position of the man who installed a very elaborate system in his business and was so busy taking care of the system that the business died from neglect. An adequate set of records should give the facts on all important activities in the simplest possible form. Such facts are the milestones which mark the straight road to business success.

Sixth: Practical knowledge of the proper handling of materials, products, or services.

This is very well illustrated by the materials, commodities, and merchandise which the business buys, sells, converts, or transports. The more an executive knows about the materials and commodities needed in his particular business, the more skilfully and rapidly will his business be able to handle them. A rapid turnover increases profits. Materials should be selected that are exactly suited to the needs of the business; there should be enough on hand to insure steady production, and there should be no excess that will eat into profits.

These elements form the foundation upon which any permanent or outstanding business achievement is based. The executive who neglects any of them is severely handicapped, and probably doomed to mediocrity. On the other hand, there is almost unlimited opportunity for the executive who makes use of them with energy and intelligence.

JAMES H. RAND

The President, Pitney-Bowes, said:

There are many thousands in business and industry—employees and managers alike—who have had occasions to experience ruefully the "divine rights" of company presidents. So I suppose they will see no inconsistency in company presidents writing their own job descriptions.

But in all honesty, as one company president I think I should acknowledge a fact perhaps not generally admitted: job descriptions usually call for the Lord himself. It would be a rare, and probably fictional, person who could measure up to the written definition of almost any management job, to say nothing of the president's.

Nevertheless, while I am somewhat appalled by my audacity, I am willing to attempt an answer to the question: "What are the most essential qualities for success as a company president?" And I shall try my best to be objective about it, guided by my own failures as well as, I hope, by some successes.

There are a number of prerequisites that we can take for granted in a man who would be a prospective president of any company. These include intelligence; executive experience in business, government, or some similar organization; sincerity and honesty; and an innate something which impells one to want to lead.

These qualifications do not narrow the field too much. The essential additional qualities should and do, I believe these are:

1. *The perception to see the broad and heavy responsibilities of the job, and a willingness and desire to assume them.* The matter of perception is fundamental to this qualification, I think. There are some men who assume company leadership who never grasp the broad responsibilities which go with the power and eminence of the top of the pyramid. And they often fail because they believe their job to be exclusively financial management, or sales, or some one aspect of the job. To know the breadth and depth of a company president's responsibilities to-day is to know the price that must be paid for the job in long hours, torturous decisions, and worry, as well as to know the five- or six-figured price the company pays to get the job done.

2. *Curiosity, tenacity, and drive.* Curiosity means taking nothing for granted. Tenacity and drive mean boring into the problems you face and analyzing, and analyzing again, until you are satisfied you have considered all significant factors, have overlooked no alternatives;

and have weighed the consequences of your action as accurately as you humanly can.

3. *The ability to speak and convince others.* This is a crucial test of leadership in its broadest and finest sense, I think. We read a lot about communication and its vital necessity in industry to-day. And it is necessary if the people who make up a business are to have the mutual confidence and faith so necessary to labor-management teamwork. But there are no written techniques that can compare in effectiveness with the personal spoken word of an articulate, sincere, and frank president who can convince those with whom he works, and on whom he must depend if he is to succeed.

4. *Humility and understanding.* This is the final dimension, and the one none of us can ever quite measure up to. Some persons might not even consider these essentials, for there have been successful leaders who appear to lack them. But they are the rare qualities that, when they are totally missing, frequently cause a man to fail who otherwise has every necessary skill. And conversely, they are the qualities that just as often can make a successful leader out of a man whose lack of the more obvious skills would appear to mark him as a sure failure.

There are other qualities that could be mentioned and that often are important. Plain luck is one; a sense of timing based on sound intuition is another.

Fortunately for all of us, it isn't possible to pin down with any simple finality the qualifications for success in any field. There are always exceptions to any criteria, and thank the good Lord, always exceptional men to make them.

WALTER H. WHEELER, JR.

The President, Fairbanks, Morse, said:

A company president should not be an expert in any one area of business. Indeed, technical skills may mediate against his success, since they may cause his interests to be narrow and off balance. On the other hand, he must have a number of important personal qualities. For example, he must be able to gather around him, and inspire to high achievement, a group of

"experts." Such people can be exasperatingly hard to live with, or to make live together. Some are slow, others sensitive, some power-minded, some abstruse and difficult to understand. Yet, with each he must be understanding. He must care a lot and have an enthusiasm which infects each to do his loyal best.

More than others, the president sees the whole problem and is constantly frustrated by those who don't: the worried stockholder; the anxious board of directors; the harried employee; the key executives who fail to do what he could do so much faster and better; the dissatisfied customer; the recalcitrant vendors. Yet he cannot reach out and hammer all those groups into submission. He must create loyalty and understanding. He must express hostility tactfully and accept victory in an unassuming manner. The company president must be a master salesman with each group, yet in each case he must tell a consistent story tied to the profitable and efficient results of his company. He must learn to live serenely in this somewhat lonely and highly dependent atmosphere—lonely because he cannot show favorites; dependent because he succeeds only as his subordinates do. He must accept and like the competitive spirit, yet be tolerant. He must keep in mind that quick profits may slow down company growth and that his company has deep responsibilities to many groups—not the least of which is a dignified and democratic American way of life.

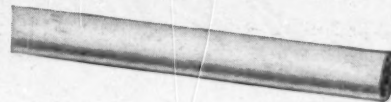
ROBERT H. MORSE, JR.

This concludes the statements by six company presidents. The three included in the December issue were Percy J. Ebbott, Chase National Bank; Stewart E. Lauer, York Corp.; Irving I. Schachtel, Sonotone Corp.



"No, the president of the Women's Civic Club is not in . . . neither is the secretary of the P.T.A. . . . the treasurer of the Ladies' Choral Group . . . nor the chairman for the Committee for Wider Streets . . . and I don't know when to expect her!"

Proud of your trademark?



**Zippos
will
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everywhere**



A lot of hard work—a lot of future hopes—are wrapped up in your firm's trademark. It's the face your business shows the world. Why not have it still more widely known—in full, rich color on the gleaming surface of a Zippo?

Give Zippos as a business gift and you may be sure that your customers will use them. 20 . . . 40 . . . 60 times a day, your message will flash before

them, just as surely as the Zippo flashes into flame.

There's something about the ease of use and utter reliability of Zippo that makes it part of a smoker's personality. It's carried everywhere—and your message with it. It's actually guaranteed to work anywhere, even in wind or rain. That means utmost mileage for your message, at modest investment. Just mail coupon.



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Please give me full information about business gift Zippos—prices in large or small quantities, time of delivery, opportunity to use color, and the help your design department will give us in making a beautiful and distinctive gift.

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COMPLETE descriptive billing in one continuous operation with

BURROUGHS *MIRACLE* **MULTIPLIER**



Invoices can be prepared in *one continuous operation* when you use the Burroughs Miracle Multiplier Typewriter-Billing Machine. Here's how it works. Instead of first figuring the bill, then typing it up and finally machine-checking the results, the Miracle Multiplier combines typing, calculating and printing entries mechanically, eliminates the need for machine-checking.

Itemized statements showing quantity, description, unit, total and grand total costs are quickly obtained in one continuous operation. Direct mechanical multiplication, not repeated addition, speeds the computation.

If you have been wondering how to save time and money in your billing procedure—Burroughs Miracle Multiplier is the accurate answer. See the yellow pages of your telephone directory for the Burroughs branch office near you, or write direct to Burroughs Corporation, Detroit 32, Michigan.

Computes and types the complete invoice in one continuous operation.

Computes by direct multiplication—not by repeated addition.

Prints quantity, then prints unit price and total amount simultaneously—no need for machine-checking of quantities and price.

WHEREVER THERE'S BUSINESS THERE'S

Burroughs



GE'S NEW PRICE POLICY: REALISM OR CONFUSION FOR THE DEALER?

*Other notes: decentralized marketing trend grows; why you can't graph
salesmen's performance; survey of new-product promotion budgets.*

GENERAL Electric Company's decision, last month, to avoid mentioning list prices in their national advertising created one of the biggest stirs in marketing since their other decision, made some time ago, to ship mixed carloads direct from Appliance Park in Louisville, Ky., to the dealer. That decision was a seemingly logical outgrowth of the Appliance Park operation itself, which gathered production of most GE appliances under one roof and, in turn, made mixed carload shipments possible. Although this gave the dealer a break on prices, it effectively by-passed the distributor who, however, continued to handle the paperwork and received the normal margin. But, looking into the future at that time, many people saw in the move to streamline distribution a hint of things to come and wondered if, like the general store, it did not portend another vanishing American, species *divisor*.

GE's latest move is in the opposite direction and appears intended to put the distributor firmly in the driver's seat—whether the dealers like it or not and their reaction so far is mixed. The plan gives the distributors full leverage in making up their own individual price lists on a long series of major white appliances. Small appliances will continue to be fair-traded. Although General Electric spokesmen stated that the plan was conceived to iron out inequities among the territories with varying cost factors, it is accepted in the trade that at least one major consideration is the distributors' long battle with discounters, and this includes the GE dealers engaging in *sub rosa* pricing on big-ticket items.

Among marketing people, the initial reaction was that the policy simply formalized a widespread practise in the appliance industry at large. It has never been any secret where discount houses obtain merchandise and the GE innovation appeared, to these observers, to be a realistic attempt to fight fire with fire.

Some dealers, however, wondered what the consequences would be in practise, operating without a firm price, nationally advertised. Not fazed by the fact that pricing would be territorial and that, therefore, all dealers in the same city would presumably show the same price, they speculated on the outcome if another large appliance manufacturer were to climb on the bandwagon. They wondered also if the door was not open to price gouging, as well as price wars.

While they were wondering, the Kelvinator Division of American Motors Corporation announced that it, too, would ship out of Grand Rapids home laundry equipment, home freezers, electric ranges, and refrigerators—direct to the dealer in mixed carload lots. Kelvinator condensing units would be shipped direct to commercial wholesalers from the factory, by-passing the distributor.

New markets, new products, equal new organization

One of the most recent corporations to face up to the fact that growth means change is the York Corporation, York, Pa. While President Lauer had been operating under a more-or-less standard functional management organization, York's sales grew to about \$90 million annually. New products and new markets, varying distribution methods made it more and more difficult for one man to co-ordinate the functional groups of sales, engineering, manufacturing, financial, and industrial relations.

York's answer follows that of a nation-wide trend: divisionalization according to product and markets. Starting his first full calendar year of operation under the new set-up, Lauer will direct a central staff. Members: v-p in charge of marketing services; v-p in charge of industrial relations; v-p in charge of engineering and research; secretary and treasurer; v-p and controller, who

also handles tax matters; general attorney.

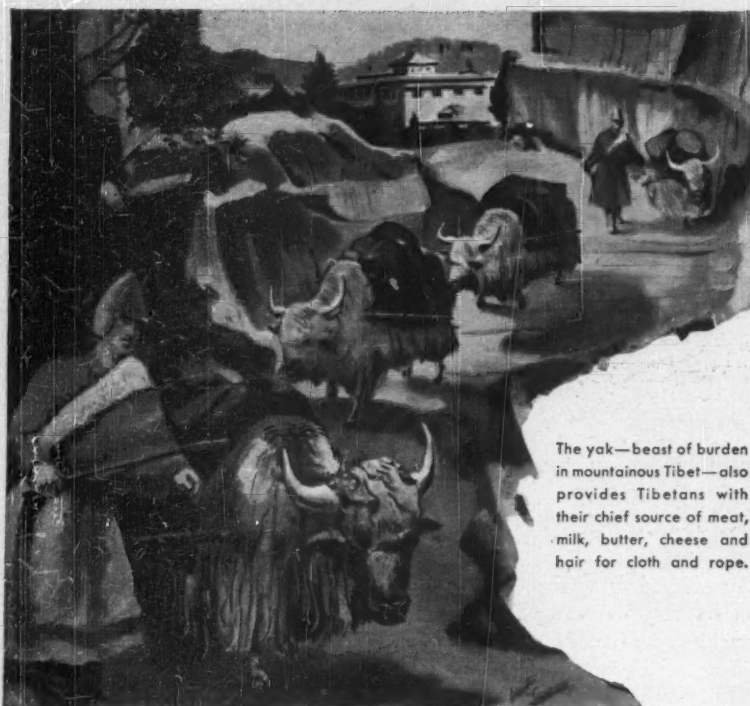
They, in turn, will advise and collaborate with the divisions—two domestic divisions, Industrial and Commercial, each headed by a vice-president and general manager, and an International Division headed by a managing director. The division heads have full profit responsibility. They also control sales, engineering, manufacturing, accounting, and procurement. One interesting sidelight: reorganization was accomplished without hiring any new executive hands.

Scientific measurement of sales performance?

A company can devise methods of appraisal but any mathematical yardsticks are loaded with fallacies, according to the sales manager of Du Pont's Grasselli Chemical Department. The primary duties of an industrial salesman, L. Kent Wyatt told the Manufacturing Chemists Association, are to hold established business and to build his share of split accounts, plus obtaining new business.

Offhand, these three factors seem to be measurable, but what about the imponderables? As Wyatt puts it: "How can a salesman prevent loss of business due to process change in the customer's plant? What can he do when our competitor builds a plant next door to his customer and puts in a 'pipe-line' delivery service eliminating us from any logical method of competing? On the other side of the ledger, the salesman would receive full credit for new business even if we happen to be the only logical supplier."

Conceivably, says Wyatt, the plusses and minuses could average out, where a large number of accounts were roughly equal in sales potential. However, in most industrial selling "the large accounts are relatively few in number, but make up the major portion of sales dollars. There is not a good sample, statistically speaking. . . ."



The yak—beast of burden in mountainous Tibet—also provides Tibetans with their chief source of meat, milk, butter, cheese and hair for cloth and rope.

MULTI-PURPOSE CONVEYORS

Modern industrial conveyors are frequently designed to accomplish more than one useful production operation.

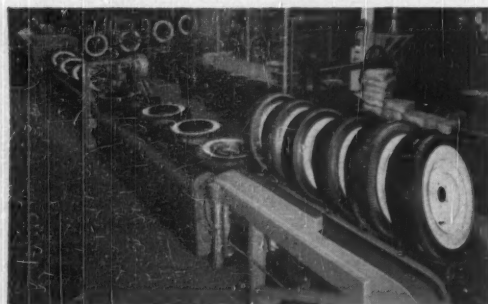
That's why some of Allied's most interesting and unusual installations have been those that best illustrate *Allied* ability and versatility for creating multi-purpose material handling equipment.

Allied have been Automation spe-

cialists for years—their installations include various types of conveyors, multiple transferring equipment, and highly engineered, fully automatic material handling systems.

If you are faced with a peculiar kind of material handling problem, you can confidently expect *Allied* to come up with a dependable and efficient solution.

PIONEERS IN AUTOMATION . . . the design and fabrication of fully automatic material handling systems



One example of highly specialized Multi-purpose Equipment is this combination Tire Inflator, moulder and conveyor, designed and built by Allied for an automobile manufacturer.

For further information request *Allied* Catalog 953



ALLIED AUTOMATION DIVISION

ALLIED STEEL and CONVEYORS, INC.

17367 Healy Avenue, Detroit 12, Michigan

How can sales management measure mathematically a man's performance in introducing new products? "The product may be acceptable in some parts of a seemingly homogeneous industry, but not in others due to various factors not identifiable in advance, such as size of operation, variations in type of equipment used, differences in quality of the final product desired or backwardness of the customer technically."

And how is it possible to graph a salesman's performance on reports of the changing competitive picture in his territory?

There are too many variables, says Wyatt, for a mathematical appraisal. Actual sales performance is itself predicated on sales management performance. The best way for management to appraise is to make a fair, humane interpretation of all the facts and arrive at a collective estimate of the man's current work and potentiality.

Marketing briefs

• **New-Product Promotion Survey.** A survey released last month by the American Supply & Machinery Manufacturers' Association showed that when promoting new products 107 companies reallocate within their current advertising budget; 65 companies increase their current advertising budget; 73 companies make special advertising appropriations and nineteen companies make no change in their advertising program.

When a special appropriation is made to promote a new product and when it is based on a percentage of anticipated first-year sales, the average company allocates about 7 per cent.

This year about 39 per cent of the responding companies expect to increase their advertising budget.

• **Government Contracts.** Unsettled claims now have a backlog of over several billion dollars. It now requires over one year to complete a settlement when the prime and subcontractors know what they are doing, often longer. The national office of the Chamber of Commerce has issued what is probably the only interpretation of current settlement procedures on the market. Their 60-page analysis is available from their Washington office at \$1 each.

• "We Were Wrong!"

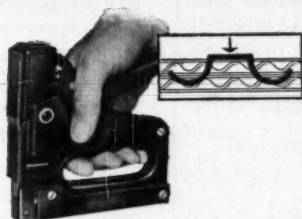
An admission seldom made by top management to its dealers and distributors was made last month by the president of Mitchell Manufacturing Company. He told his group that the air-conditioning industry overestimated the market by 25 per cent. "It is the manufacturer who is to blame for price cutting," he said, "and this isn't the first mistake we've made in predicting the market." He noted that in 1951 sales were overestimated, that in 1952 and 1953 the market was underestimated by 30 per cent. Dealers' loss of profits in a new industry, he noted, "are just part of the process of growing up."



Automation replaces three order-writers

Sixty salesmen serve customers of liquor wholesaler Austin, Nichols & Company of New York City. Formerly, eight order-writers handled incoming calls and a salesman often waited half an hour to be processed.

Now, using nine telephone recorders (Dictaphone), the salesmen are able to phone in about nine orders in three minutes. A modified switchboard automatically cuts off the recording when the salesman hangs up.



Bostitch T5-8 Tacker with Outward Clinch—It anchors staples inside soft materials entirely from the outside. Staple legs spread to form strong, tight clinch (see diagram). Ask your Bostitch Economy Man for a demonstration.

STAPLES HOLD BETTER AT ONE-TENTH THE COST! Trans World Airlines overlook no detail in assuring the safe, swift arrival of air freight shipments. Shipping bills fastened to cartons with even the best tape sometimes tore loose in damp climates. And taping cost \$14 a thousand.

A Bostitch Economy Man suggested stapling the bills with a new Bostitch tacker that "spread-eagles" staple legs inside carton walls. TWA tried it, found stapling four times faster than taping and *far superior in holding power*. Cost: \$1.40 a thousand. Now all major TWA stations are Bostitch-equipped!

How much can you save by switching to Bostitch stapling?

Your Bostitch Economy Man can tell you. He's one of 350 trained fastening specialists working out of 123 cities in the U. S. and Canada. There are over 800 kinds of Bostitch staplers in his cost-cutting repertoire. Look up "Bostitch" in your telephone directory, or check the coupon at the right.

BOSTITCH, INC., 661 Mechanic St., Westerly, R. I.

I'd like to know exactly how stapling can cut costs in our fastening operations. I'm particularly interested in the following applications (please check):

HI-SPEED PRODUCTION FASTENING

- ☐ stapling vs. riveting
- ☐ stapling vs. spot welding
- ☐ stapling vs. screws or bolts
- ☐ stapling vs. glue or cement
- ☐ stapling vs. tape
- ☐ stapling vs. tacks or nails
- ☐ stapling vs. solder
- ☐ stapling vs. wire or string

PACKAGING and CARDING

- ☐ sealing bags (cloth, paper or plastic)
- ☐ mounting products on display cards
- ☐ fastening items to individual cards

SHIPPING ROOM ECONOMIES

- ☐ preparing cartons for filling
- ☐ sealing filled cartons
- ☐ lining or padding crates
- ☐ applying shipping bills or tags

BUILDING APPLICATIONS

- ☐ applying asphalt roofing
- ☐ laying underfelt
- ☐ installing ceiling tile
- ☐ applying insulation
- ☐ installing low-voltage wiring
- ☐ applying shake shingle siding

OFFICE EFFICIENCIES

- ☐ filing
- ☐ routing
- ☐ posting
- ☐ binding folders and reports
- ☐ preparing advertising dummies

Fasten it better and faster with

BOSTITCH®
STAPLERS AND STAPLES

Name _____ Position _____

Company _____

Address _____

City _____ Zone _____ State _____



Eliminates 3 costly operations with **DENISON MULTIPRESS®**

Three time-consuming operations eliminated.

Production doubled.

A better product at less cost.

...all because of a switch to Denison hydraulic Multipress.

At The Nye Rubber Company, Barberton, Ohio, the old method for trimming flash from molded rubber wheels required cutting, freezing, tumbling, buffing and washing—with parts loaded and unloaded by hand for each operation. Now, a 4-ton Multipress trims flash automatically.

The operator simply loads parts, which are carried under the ram by a Denison Index Table. One smooth hydraulic stroke trims the flash neat and close. Air blows



the finished product down a chute for packing. The rate for one operator: 2400 parts an hour.

A switch to Denison Multipress could cut costly operations in your plant. Write for cost-cutting ideas and technical bulletins.

THE DENISON ENGINEERING COMPANY
1162 Dublin Road • Columbus 16, Ohio



HYDRAULIC PRESSES
PUMPS • MOTORS • CONTROLS

DENISON
HydrOILics

Executive BOOKSHELF

On the Team

Too frequently, efforts to create teamwork have been limited to inspirational speeches reminiscent of a stadium locker-room. However, in recent years, some companies have begun to apply the techniques of group dynamics in order to have their staff members perform as alert, co-operative teammates.

Warren H. Schmidt of the Adult Education Association of the U. S. and psychologist Paul C. Buchanan have distilled the diverse discoveries of recent years about how people work together harmoniously into a new little book, *Techniques That Produce Teamwork*. In this primer on administrative teamwork, the authors stress that if you would have your staff accept more responsibility, you should present goals that make sense to them. In addition, group morale and effectiveness depend directly on the staff's share in decision-making.

The knotty problems of determining which decisions a staff can share, of conducting meetings, and of maintaining group loyalty are among the topics discussed. While the emphasis is on group harmony, the authors see little justification in viewing the technique of "group-think" as a panacea.

Arthur C. Croft Publications, 100 Garfield Avenue, New London, Conn., 75 pages, \$2.50.

Design for Profit

Sometimes in the past, industrial design was considered as a superficial covering to be draped over the product before it was sent out to the customer. However, as Industrial Designer Harold Van Doren stresses in his new edition of *Industrial Design*, good design must be built in and not draped on.

The methods for carrying a product idea through the various stages of development, including preliminary research, visualization, rendering, model-making, and customer-testing, are described step-by-step

in non-technical language. While this volume is of primary interest to designers, engineers, and draftsmen, it should be absorbing reading for management men concerned with getting their profits in better shape through good design.

McGraw-Hill Book Company, Inc., 330 West 42nd Street, New York 36, N. Y., 379 pages, \$6.50.

To Those Who Wait

Silent salesmen who also serve as they stand and wait are bringing about sweeping changes in the pattern of American retailing. Automatic vending machines, once the source of little more than chewing gum and candy, have gone on, particularly in the past five years, to sell such items as insurance policies, ice cubes, raincoats, umbrellas, charcoal, shaves, and even hang-over remedies in the form of a whiff of pure oxygen.

G. R. Schreiber, editor of *Vend* magazine, points out in this new book, *Automatic Selling*, that although only about 1 per cent of all retailing is done through machines, the volume has been growing spectacularly in recent years. The most pronounced growth has been in vending machines in industrial plants which account for the largest concentration of all such machines. Small- and medium-sized manufacturers vexed by in-plant feeding problems will find rewarding reading in the case histories of how many plants have solved the problem.

Not only manufacturers interested in this new method of opening new markets, but general readers will find this volume fascinating as it traces the history of automatic selling since Hero devised a machine for selling holy water in Greek temples over 2,000 years ago. Discussed in detail are the many unusual and highly profitable uses of vending machines. In Denmark, retailers use automatic machines to sell meat, groceries, and many other goods after closing hours, thus at-



REVOLVATOR RED-GIANT features Safety-Ease

Durability—built in by 50 years of Revolvator Co. experience—is still the fundamental of the Red Giant lift-truck line. Maneuverability, plus the safety of their exclusive double stroke mechanism, make the models shown leaders in their fields. There is a Red Giant lift-truck available for every use—for every capacity.

Write for the full facts today.

REVOLVATOR CO.
8702 Tonnele Ave. North Bergen, N. J.

No. 1 in 50,000 Firms

Because It Outlasts
Ordinary Brushes
3 to 1



27 Speed Sweep styles and sizes to meet every sweeping need. Write for prices today.

MILWAUKEE DUSTLESS BRUSH CO.
530 N. 22nd St., Milwaukee 3, Wis.

taining a round-the-clock market. Scores of large apartment houses in New York City are provided with machines which dispense quart containers of milk at supermarket prices.

But the future of this volatile industry seems even more startling. Already a number of supermarkets have installed vending machines while the outdoor market has been barely approached. Merchandising men are particularly intrigued by automatic selling for it offers entrée to otherwise inaccessible markets while reducing distribution costs at the same time.

Among the topics treated in this book are costs, tests for determining if a product can be vended, legislation, and probable future developments. Since this new revolution in retailing, following the coming of the supermarket, should bring many changes in store layouts, it might aptly be characterized as a counter-revolution.

John Wiley & Sons, Inc., 440 Fourth Avenue, New York 16, N. Y., 195 pages, \$5.

How Large a Staff?

The awkwardness of growth can be as nettlesome to manufacturers as to teen-agers. Since few companies are standing still, the problem of adjusting the growth of the various staff departments to the rate of expansion in production workers is a constant consideration for management.

Now available is a yardstick—admittedly tentative—for measuring the manner in which such departments as maintenance, engineering, personnel, accounting, production control, and many others are frequently adjusted to harmonize with the changes in the number of production workers.

Drawn from detailed information from 211 individual manufacturers (mostly small), this study, *Ratios of Staff to Line Employees and Stages of Differentiation of Staff Functions*, describes in detail which departments usually increase less than the production force and which parts of a business are usually expanded more than the work force. Authors Alton W. Baker and Ralph C. Davis have included dozens of tables and charts to enable the manufacturer to gauge his growth.

Bureau of Business Research, The Ohio State University, Columbus, Ohio, 62 pages, \$1, Monograph No. 72.



SYNTRON "Pulsating Magnet" ELECTRIC VIBRATORS

... for
a free flow of
stubborn
materials
through bins,
hoppers and
chutes

Simple, rheostat controlled electromagnetic vibrators that prevent arching or plugging of the most stubborn materials. No mechanical wearing parts. Compact—easy to install. Eliminate equipment damage and personal hazard from rodding, poking and sledging. Models and sizes for any bulk handling installation.

Other Syntron Equipment That

Reduces Handling Costs And Speeds Production

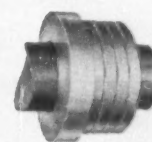
VIBRATING SCREENS

For heavy tonnage sizing and scalping. Rheostat controlled electromagnetic vibration. Easily replaceable screens—no mechanical wearing parts.

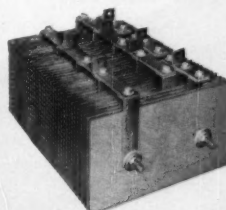


SHAFT SEALS

Self-lubricating, mechanical seals for rotating shafts of pumps, compressors, etc. Eliminate leakage of either liquids or gases. Will not cut or score shaft.



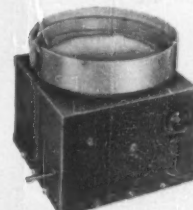
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Vacuum process, uniform, high quality cells in plate size from 1" square to 12"x16". Extremely low forward voltage drop.

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For automatic, single line, oriented position feeding of parts at controllable rates. Handle parts of most materials and shapes at required production speeds.



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Here and There in Business

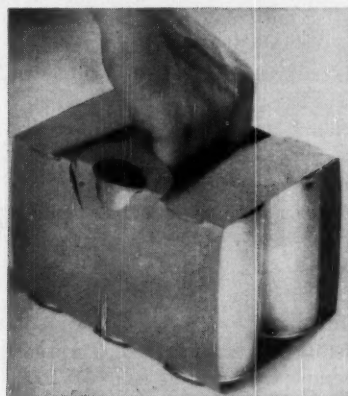
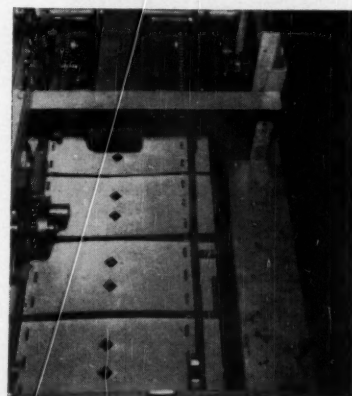
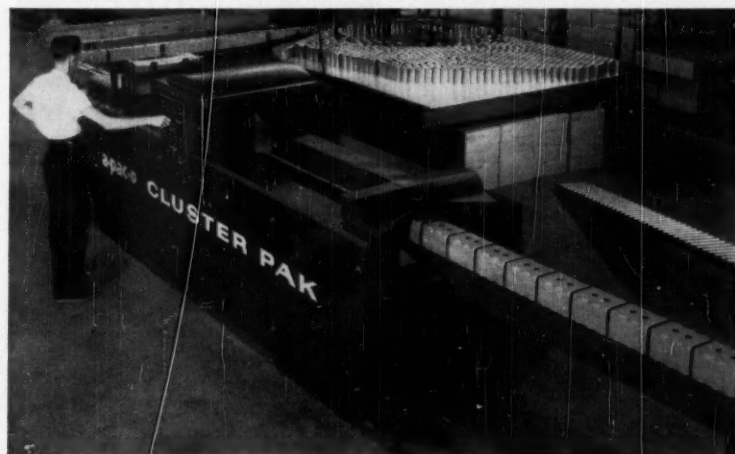
WHAT'S NEW

AS OBSERVED BY THE EDITORS

New cartoning machine, designed to meet today's multi-unit merchandising needs, is said to offer the triple advantage of low initial cost, high speed operation, and use of an inexpensive carton. Called the *Cluster-Pak*, the new machine was developed by Atlanta Paper Company, 950 West Marietta Street, N.W., Atlanta 2, Ga. According to A-Pac-O, the machine can be adjusted to pack cans in several different arrangements (single file or two-by-two), and will handle as many as 900 cans an hour. The price of the complete unit is about \$23,000, and carton cost is estimated at two cents. The photographs show an over-all view of the machine; a

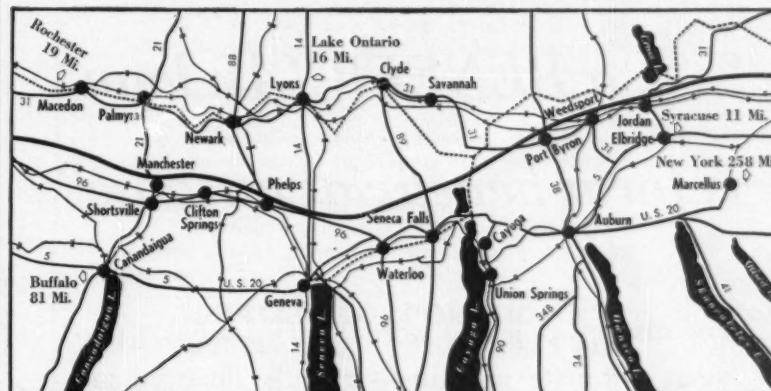
closeup of the carton-forming section; and the completed pack.

Automatic plating equipment in a new design that combines unusual flexibility with speed and efficiency of handling is proudly announced by Udylyte Corporation, Detroit 11, Michigan. Displaying the first installation of its *Selective Cell* plating machine, Udylyte pointed out that this design permits use of a new method of rack handling that allows parts to remain at rest in plating cells for whatever time is required while other cells in the same section accommodate parts waiting for treatment. In this particular installation, automobile



MODERN INDUSTRY

Top of the Finger Lakes is TOPS in location in transportation



LEGEND: New York Thruway — Other Main Highways — Railroads — Barge Canal

WE admit we are prejudiced because of our permanent interest in these industrial garden spots of Central New York which we serve. But also, we believe, are the 75 manufacturing firms that prosper here. In the approximately 134 square miles shown in the above map are 22 communities which share the following advantages for manufacturing of nearly any product.

LOCATION

Markets and Raw Materials in East and Midwest a day or less away.

Water supply unexcelled—Finger Lakes have a uniform year-round temperature of 40° to 50°.

Living environment is famous. No congested sections. Opportunities for wholesome recreation on every hand. Superior educational facilities.

TRANSPORTATION

New York Thruway and three other major east-west highways—nine main north-south state highways.

Railroads to all directions. New York Central main line and branch lines . . . Pennsylvania . . . Lehigh.

Barge Canal, the original low cost water route to Buffalo and to New York harbor.

LABOR SUPPLY

Native population percentage very high—mostly thrifty, educated, car-owning, house-owning families.

Skills in a wide variety of industry.

Labor harmony has a long tradition.

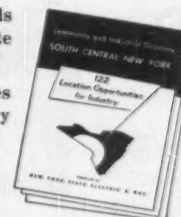
Short commuting. Average distance between neighboring communities 6½ miles.

PLANT SITES

A great many to choose from—level terrain, on railroads and express highways—to suit your requirement. Write for confidential survey of any of these communities.

Get our Community and Industrial Directory—gives basic information about 160 Garden Spots for Industry in South Central, Western and Eastern New York.

INDUSTRIAL DEVELOPMENT DEPARTMENT
62 Henry Street • Binghamton, New York



New York State  Electric & Gas



*"... a BENEFICIAL loan
is for a beneficial purpose"*

For many people the word Beneficial has a personal, intimate meaning—friendly financial aid readily available in time of need. Families are thus enabled to pay old bills and relieve current financial stress.

This stream of consumer credit—originating in 860 offices of the Beneficial Loan System and amounting to over half a billion dollars annually—flows and spreads into the channels of commerce, thus helping merchants, manufacturers and professional people in thousands of communities throughout the United States and Canada.

In this way a BENEFICIAL loan helps many people—perhaps you. And that's what we mean when we say *"a BENEFICIAL loan is for a beneficial purpose."*

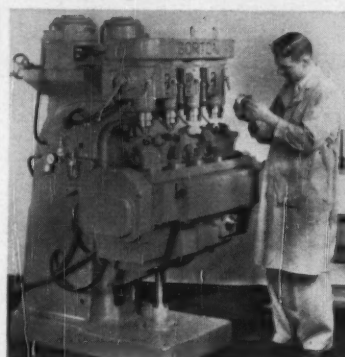
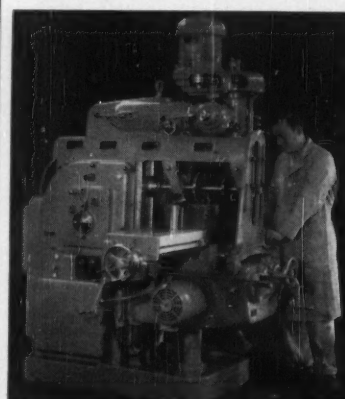
Beneficial Loan Corporation

BENEFICIAL BUILDING, WILMINGTON, DELAWARE

Subsidiary Loan Companies: PERSONAL FINANCE COMPANY . . . BENEFICIAL FINANCE CO.
COMMONWEALTH LOAN COMPANY . . . WORKINGMEN'S LOAN ASSOCIATION, INC.

bumpers are chrome-plated on a two-minute cycle; 30 racks an hour, with twelve bumpers to a rack. The machine is powered by Vickers hydraulic drive units, and is fed by Cleveland Tramrail equipment.

Two new metal-working machines have been introduced by The George Gorton Machine Company, Racine, Wis. Top picture below shows a multi-purpose milling



machine which replaces the conventional overarm with a "Receptor Ram," for greater versatility in milling operations. Bottom picture shows a four-spindle rotary duplicator. The four heads work in alternating pairs, allowing one pair to be working while the second pair is being processed.

With plastic pipe, fittings, tanks, and duct work proving so popular in plant construction, it's not surprising to find new suppliers sprouting across the country and demand growing in Europe as well as in this country for equipment that will produce the necessary resins. Pictured on page 86 is a packaged plant developed by Scientific Design Company to produce polyvinyl chloride (PVC) by a new suspension process. Cost of a plant of this type, according to Scientific Design, would range from \$180,000

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portable shredding machine designed especially for office use! Quiet, compact, streamlined!

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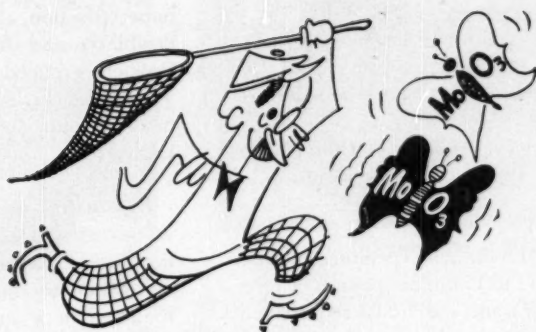
Louis J. Glickman

REALTY INVESTMENTS
565 FIFTH AVENUE • NEW YORK 17, N. Y.

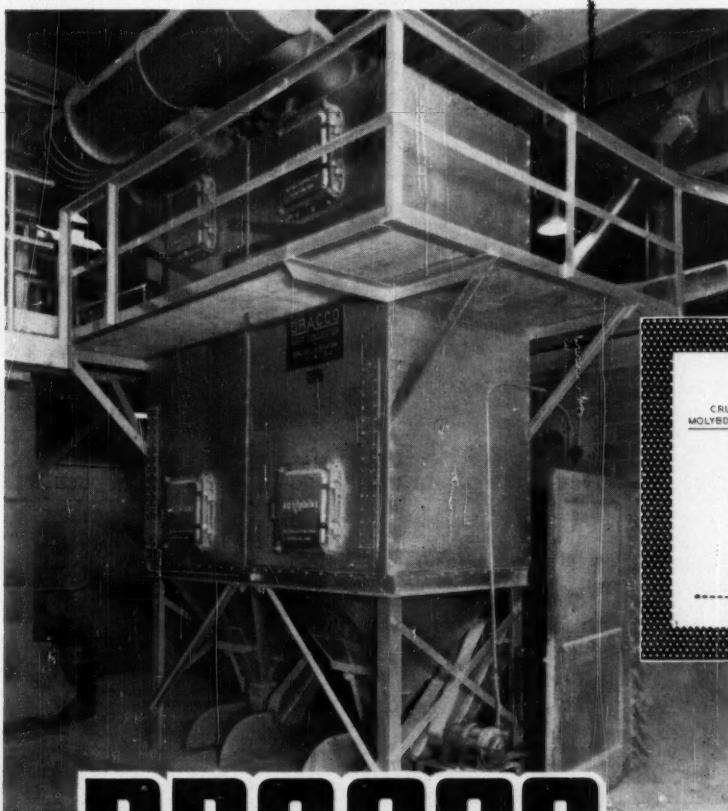
MARCH OF DIMES



JANUARY 3-31



CATCHING HOT FUMES FOR HIGH-PURITY METALS!



● Recovery of all pure molybdenum trioxide—that's the vital job done by Dracco Dust Control Equipment at the Climax Molybdenum Co., Langeloth, Pennsylvania.

This valuable compound is important in the technology of the new "pure" metals now being used for high temperature alloys and electronic components. It is sublimed by Climax from crude molybdc oxide in a continuously operating electric furnace. Pure MoO_3 fumes which are released in this sublimation process are carried to two Dracco Dustomatic Filters for collection.

Then, prior to packing for shipment, the collected product is agglomerated and dried. To eliminate loss of any MoO_3 which may become air-entrained at this stage, two more Dracco Dustomatic Filters are integrated with processing and packaging equipment. All air-entrained particles are captured and re-introduced to process.

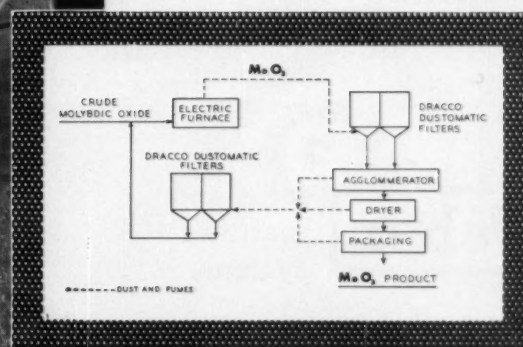
This Dracco Dust Control System—upon which pure MoO_3 production at the Climax Langeloth plant is completely dependent—assures contaminant-free product recovery at maximum efficiency.

If your profits depend on catching *all* of your product, consult Dracco about a peak efficiency dust control system.

DRACCO CORPORATION
4044 EAST 116th STREET • CLEVELAND 5, OHIO

Two large Dracco Dustomatic Filters are integrated with an electric furnace to capture hot MoO_3 fumes released in sublimation of crude molybdc oxide. Dracco Filters (left) eliminate product loss during final processing operations.

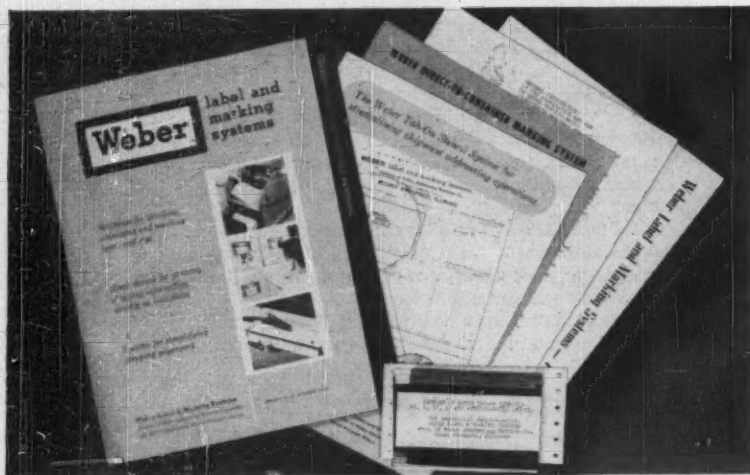
Diagram shows how Dracco Dust Control Equipment is integrated with other processing equipment used by Climax in the manufacture of pure molybdenum trioxide.



For complete technical information on "Industrial Dust Control and Recovery", write today for Dracco Bulletin 800.

DRACCO *Performance Proved*
Airstream CONVEYORS • DUST CONTROL EQUIPMENT

This "free" file-folder kit will show you How to modernize your shipping operations



NOTHING LIKE IT EVER BEFORE! Not a catalog of products, but a file folder of systems created to streamline shipment addressing and marking, and simplify shipping paperwork.

Cost-conscious firms have discovered that the key to efficient shipping and packaging operation is a fast, low-cost system for addressing and marking containers. That's exactly what this File-Folder Kit is about.

Described and illustrated are systems that make shipment addressing and product identification marking faster, cheaper and more accurate. You'll see how addressing operations can be tied-in with the preparation of shipping paperwork, and how the

entire chain of events leading to the addressing and marking of your shipments can be streamlined. And there are also product samples that you can try out!

Never before has so much factual information been offered on this important subject—and it's all yours without charge or obligation. Make sure you get your Weber Label and Marking Systems File-Folder Kit right away! Simply fill out the coupon below and mail—today!

Weber label and marking systems

Division of
Weber Addressing Machine Co.
Mount Prospect, Ill.
Phone: CLearbrook 3-2405

Weber Label and Marking Systems
Dept. 3A, Mount Prospect, Ill.

- ☐ Please send me a Label and Marking Systems File-Folder Kit.
☐ Also, we would like to talk to your representative as soon as possible about improving our shipment addressing and marking operations, and simplifying our paperwork.

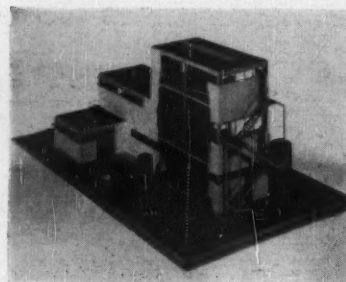
Company _____

Individual _____

Title _____

Address _____

City _____ Zone _____ State _____

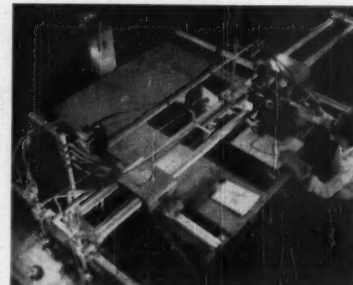


to \$1.5 million depending on capacity (2 to 15 million pounds of resin a year) and individual requirements. A dozen or more companies now produce plastic pipe in this country (see August 1954, page 71) and supply fittings to go with them. The Lukenheimer Company, for instance, has a new patented line of all-molded valves and fittings, and American Hard Rubber will supply both pipe and fittings in standard IPS sizes.

Good design for lighting—design that combines attractiveness with good visibility—is pointed up by Wakefield Brass Company, Vermilion, Ohio, in a series of booklets which are themselves unusual in concept and design. Together they show how modular lighting units

can be selected and arranged to combine high-quality lighting with noise reduction, air diffusion, space flexibility, and fire control. The booklets, grouped as *Brochure No. 55*, may be obtained from the company's headquarters or its representatives.

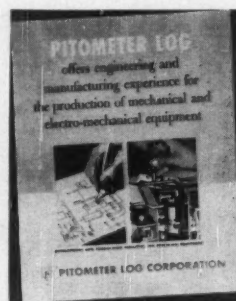
Versatility keynotes its newest shape-cutting machine, Air Reduction Sales Company proudly points out. Not only can the torches be mounted in a variety of positions,



but three different types of tracers (electronic, magnetic, and manual) may be used. Here, it's equipped with the electronic unit, which makes it possible to use an inexpensive paper cut-out or a pen-and-ink drawing to guide the cutting heads.

Development and production facilities now available for precision equipment

New York firm specializes in mechanical, electro-mechanical and electronic equipment for customers who want workmanship and precision rather than mass production



Until recently our engineers and factory have been fully occupied in developing and producing electro-mechanical and electronic equipment for the armed services. Now, however, we are in a position to offer product development and precision production of similar parts and complete units to industrial concerns.

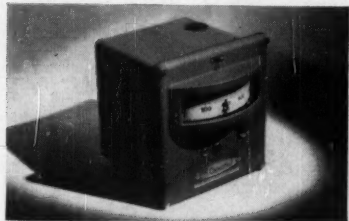
A background sketch of the company, including a summary of work done for the U. S. Navy and a list of production, testing and laboratory equipment, is available on request. Send for free booklet, "Development and Production Facilities for Precision Equipment."

Please address Francis L. Corbin, *Chief Engineer*.

PITOMETER LOG CORPORATION

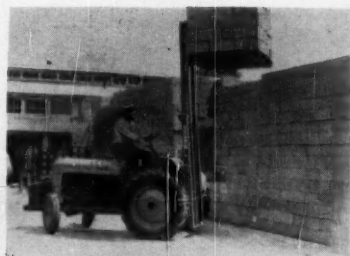
237 Lafayette Street, New York 12, N. Y.

The basic unit, with two torches, cutting tips, manual tracer, and tracing table is priced at \$3,450, f.o.b. Union, N. J.



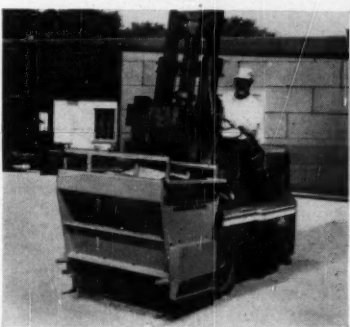
A heating control unit, designed for plastic machines, methods, and materials, but suitable for other industrial heating operations, is being manufactured by Wheelco Instruments Div., Barber-Colman Co., Rockford, Ill. Plug-in components enable the Model 297 Capacitrol to be serviced without disturbing wiring. Thermocouple Break Protection is available as an extra feature.

Transforming a tractor—even an ordinary farm one—into a fork-lift truck for work in areas where standard trucks cannot operate, is the trick accomplished by Sherman Products, Inc., Royal Oak, Mich.,



with its new Fork-Lift attachment. Operating hydraulically, the attachment is said to perform all normal operations of a fork-lift truck and to be capable of lifting a 4,000 pound load ten feet.

Another transformation is accomplished by an attachment which changes a fork-lift truck into a



YOUR OFFICE an index of your executive achievement



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buy...

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your trucks



There is a difference between a *Risk* and a *Chance*

Returning from a two-year expedition in the Arctic, a famous explorer was asked to recount "his closest call." He answered, "I didn't have any. A well-planned expedition takes no chances."

"But wasn't there any risk involved?"

"Plenty—but there's a difference between a risk and a chance. A chance is a *blind* gamble in which you are at the mercy of luck. A risk is a hazard which you know exists and you meet it with *eyes wide open*—taking every reasonable precaution to avoid the danger which is apparent."

Let's apply the explorer's logic to everyday business. The parallel is interesting, because the businessman is an adventurer who must calculate risks against rewards.

Ask any credit manager. He'll tell you that he "takes the risk" of capital or merchandise as a necessary element of the great adventure of business. But the credit manager recognizes the hazard by maintaining clear visibility and constant vigil through current information in his files.

The supplier who "takes a chance" and ships or declines without adequate credit information is trusting to luck instead of logic.

The business of Dun & Bradstreet is to present facts as a basis for credit decisions—facts on management experience, method of operation, financial position, and payment habits.

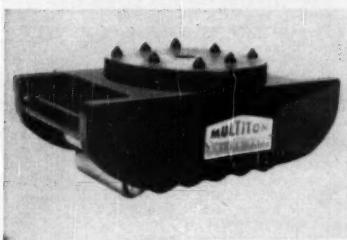
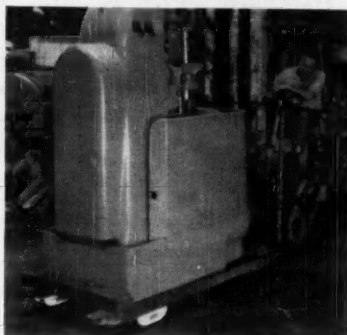
Successful concerns sell on *facts*—not *hunches*.

Dun & Bradstreet, Inc.

OFFICES IN PRINCIPAL CITIES OF UNITED STATES

spreader. Manufactured by Swenson Spreader & Manufacturing Co., Lindenwood, Ill., the Industrial Fork Lift Spreader is attached by engagement of fork and spreader supports, actuated by drive wheel contact with front wheel of the truck. Slight lifting of fork disengages the drive wheel.

A miniature rolling dolly to



facilitate the transfer of heavy machinery and equipment has been introduced by Stokvis-Edera & Company, Port Washington, N. Y. More streamlined than its British counterpart (see June 1954, page 119), the Multiton roller skid applies the tank track principle by having an endless chain of steel rollers mounted in a steel casing and topped by a gripping plate that bites into the wooden frame supporting the unit to be moved. Multiton dollies come in ten and a half- and twelve-inch lengths, can carry 35 to 55 tons.

Close-tolerance wrought iron tubing for heat exchange and air-conditioning systems is now offered by A. M. Byers Company, Pittsburgh, Pa. According to Byers, the new cold-drawn tubing offers unusual corrosion and fatigue resistance and is "especially suitable for handling salt and brine solutions." It has been service-tested for several years and is now being recommended for use in ammonia condensers, preheaters, gas cooling apparatus, butane and propane vaporizers, cooling pipe, and steam condensers.

MARSH & McLENNAN

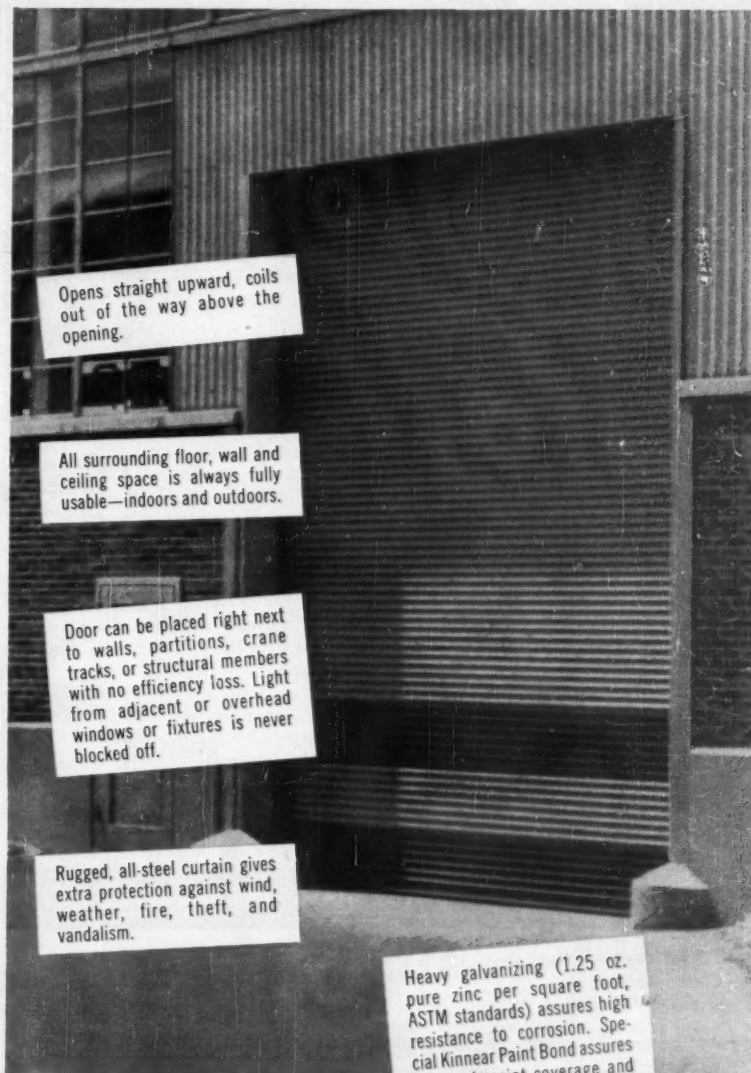
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Kinnear Steel Rolling Doors



Opens straight upward, coils out of the way above the opening.

All surrounding floor, wall and ceiling space is always fully usable—indoors and outdoors.

Door can be placed right next to walls, partitions, crane tracks, or structural members with no efficiency loss. Light from adjacent or overhead windows or fixtures is never blocked off.

Rugged, all-steel curtain gives extra protection against wind, weather, fire, theft, and vandalism.

Heavy galvanizing (1.25 oz. pure zinc per square foot, ASTM standards) assures high resistance to corrosion. Special Kinnear Paint Bond assures thorough paint coverage and lasting paint adhesion.

Write today for full details

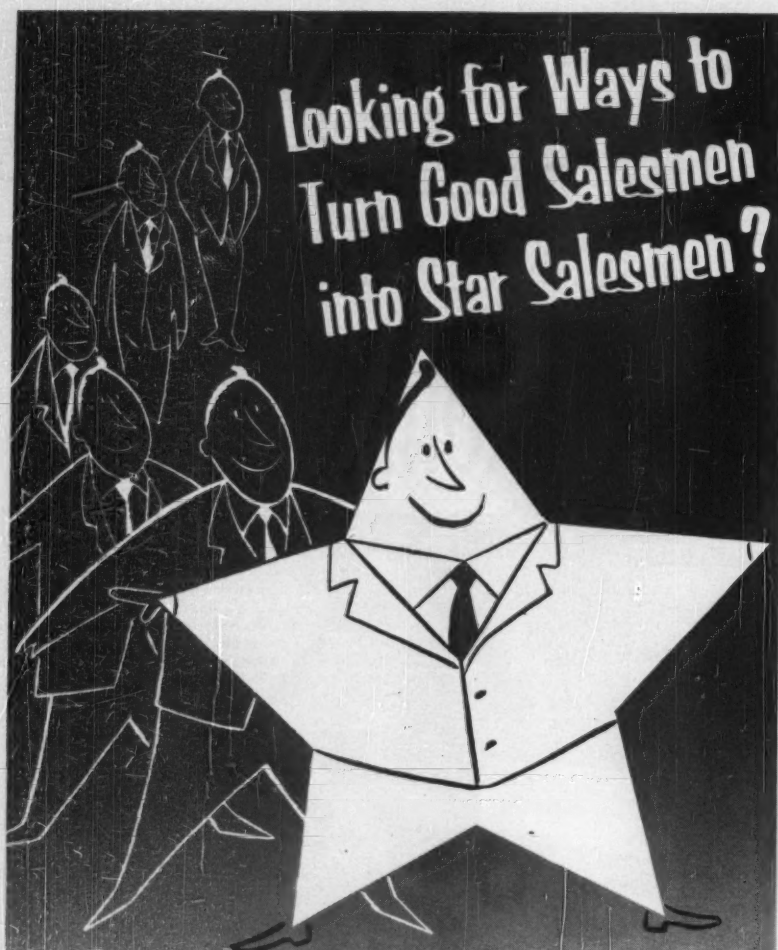
The KINNEAR Mfg. Co.

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Saving Ways in Doorways

KINNEAR
ROLLING DOORS



Looking for Ways to Turn Good Salesmen into Star Salesmen?

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...for a rated list of business concerns in every urban, suburban and rural location. With the Sales Guides for their territories, which contain the same information about customers and prospects as the Dun & Bradstreet Reference Book, they can call first on the known best prospects and divide their remaining time among marginal and doubtful prospects.

Good salesmen spend as much time as they can with prospects. Star Salesmen plan each day's calls to spend as much time as possible with the best prospects they can get to see.

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139 Offices in Principal Cities of the United States
Headquarters: 99 Church Street, New York 8, N. Y.

THERE'S A DIFFERENCE BETWEEN SPENDING TIME AND INVESTING IT

Dun & Bradstreet, Inc.
99 Church Street,
New York 8, N. Y.

Dept. 11

- ☐ I'd like more information (including prices) about State Sales Guides.
- ☐ I'd like information about the Dun & Bradstreet sales-training film, "Of Time and Salesmen," which I understand is available for showings at sales meetings without cost or obligation.

Name.....

Company.....

Address.....

City..... Zone..... State.....

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*ASTM average Izod test using notched 1/8-in. bar at 75 deg. F.

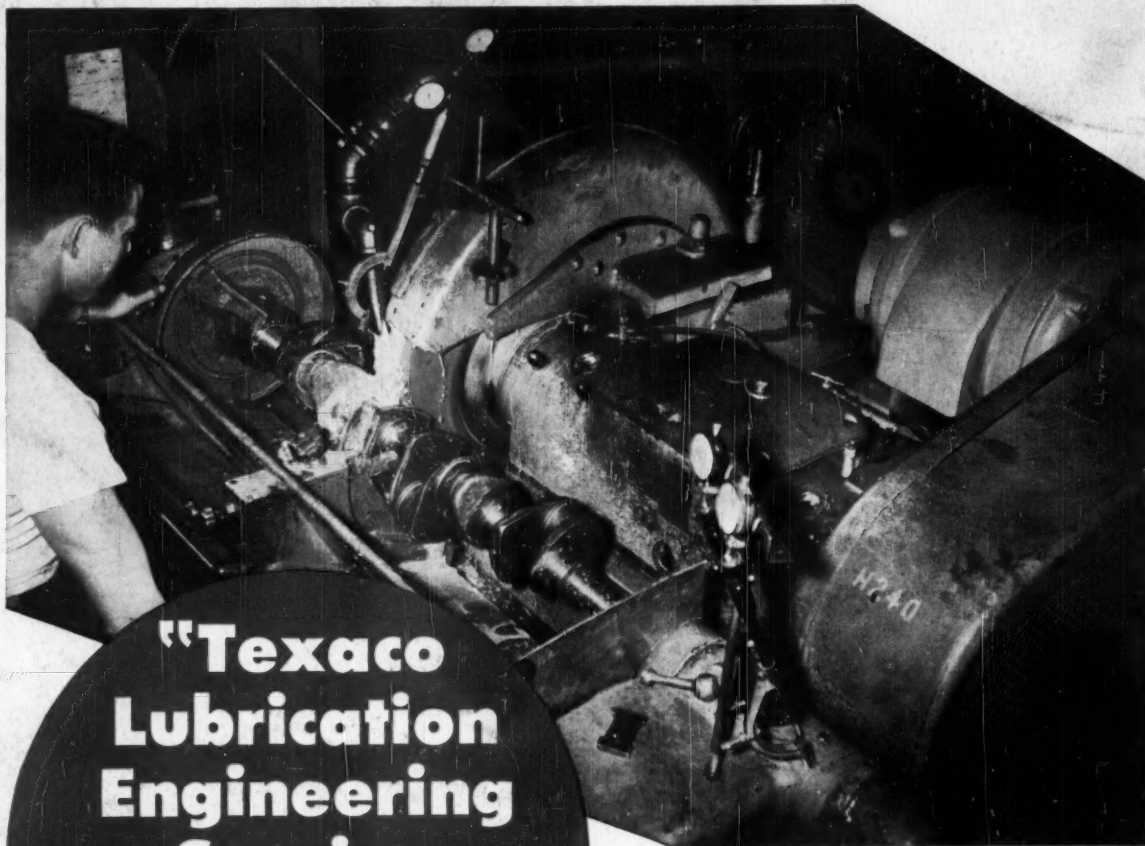


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